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ON THE RAISING AND TRAINING OF IRREGULAR MOUNTED TROOPS.

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PART I.

By Lieut.-Colonel G. KEMP, M.P.

Thursday, 23rd April, 1903.

Lieut.-General Sir J. D. P. FRENCH, K.C.B., K.C.M.G.,
Commanding First Army Corps (Aldershot District), in the Chair.

BEFORE dealing with the subject of the discussion to-day, I wish to take this opportunity of expressing what has been in my mind since I heard that General French had consented to take the Chair. It would be mere presumption on my part to speak of the great services he has rendered to the country, but as a humble lay student of military matters I may be permitted to express my deepest admiration of one operation alone—the Colesberg campaign, in the South African war, by which our opponents were completely bluffed, and a great strategic success, perhaps the most conspicuous during the war, resulted. I can only say how greatly, as a member of the Auxiliary Forces, I appreciate the honour of his presence in the Chair, while I approach my subject with increased diffidence.

Having been asked to read a paper on "The Raising and Training of Irregular Mounted Troops," I gladly put forward such ideas as I have formed during the last three years, although I am fully aware that I approach the subject as an Irregular soldier myself, and address those who have made a life-long study of military matters. My hope, however, is that such remarks as I have to make from the point of view of a civilian may be of use in eliciting valuable criticism and suggestions from those who are qualified to speak.

I must crave the indulgence of my hearers throughout this paper for the use of the first person, as my paper is based on my actual experience in the raising of these troops. In January, 1900, I had the

privilege of raising a squadron of Yeomanry, with a Colt gun section attached. In 1901, I had under my command a considerable number of the 2nd Yeomanry, and subsequently the superintending of their training in South Africa. In 1902, it was my lot to raise and train a battalion of mounted infantry again, with a Maxim gun section attached, in England. I am fully cognisant that there is nothing here which is original; in fact, all the requirements which I should demand under similar circumstances would be readily admitted by everyone. But I am anxious to make it clearly known that these are the very things which we lacked at the proper time, and which, therefore, made the task, which should have been of the greatest pleasure, a source of disquietude and some disappointment.

The subject may, I think, be regarded as one of recent date, as I am not aware that Irregular mounted troops in any considerable numbers have ever been raised in this country before the South African war. It would be conceded that prior to this date the Regular Army was considered sufficient in numbers to meet any contingency that might arise outside these islands. Consequently, there has never been any organisation especially designed for this purpose. The opinion, however, of the War Office with regard to the Auxiliary Forces has been somewhat changed lately, and it is now proposed to incorporate special squadrons of Yeomanry for service abroad with the Regular cavalry. I do not intend to enter into the merits of that proposal on this occasion, as it might be more properly designated "The raising of drafts for Regular cavalry in case of emergency." It is my intention to deal first with the three methods employed during the war to raise mounted troops, and in conclusion to make suggestions for a similar occasion in the future.

In the latter months of 1899 the idea was conceived of using the Yeomanry for service abroad, a force almost universally considered and, no doubt, in some instances with great reason, as the plaything of the officers, and useless for any practical purpose. There was, however, this to be urged in justification of the plan, that the force formed an organising nucleus in the various counties for raising mounted men for the war. It was therefore decided to form a committee, entirely separate from the War Office, composed of Regular and Yeomanry officers, who should be entrusted with the entire raising and organisation of some 10,000 men from the existing Yeomanry regiments. This committee, as you know, was responsible for the regimental staffs, officers, equipment, horsing, training, and even of the transport of the force to South Africa.

The question here suggests itself: is it advisable that such a body should be formed with these responsibilities, or that the Commander-in-Chief should appoint the commanding officers, giving them the power of choosing their officers, delegating to them the various duties already mentioned, and allowing them to act directly under the War Office? It may be urged in favour of the plan of appointing a special committee, that at a time when these men might be required, the War Office would be overburdened with work, and by this method would be considerably relieved. On the other hand, it is asking more than can be reasonably expected, that a body of men, suddenly appointed, who have never acted together, and who have not had experience in the many departments requiring a certain amount of technical knowledge, should at once act harmoniously, efficiently, and economically. Does not this point to a permanent

advisory committee? On this subject there will no doubt be discussion, and I will for a moment pass on to their method of procedure.

Communication was made to commanding officers of existing Yeomanry regiments asking them to organise squadrons for the war; this request was, I believe, in every instance complied with; the commanding officers then proceeded to appoint captains to command the squadrons with their subalterns. The result of this was somewhat striking, as in few cases were the squadrons entirely officered out of the Yeomanry, while in some there was a proportion of under 50 per cent. of *bonâ fide* Yeomanry officers. The deduction to be drawn from this would seem to be that either Yeomanry officers did not feel themselves sufficiently trained to justify their undertaking the responsibility, or their obligations at home did not permit of their leaving the country for any considerable period. Here again the question of officers opens out a rather wide field of discussion, involving as it does the question of the circumstances under which the raising of irregular mounted troops would be necessary; it is difficult to conceive that resort to this expedient would be made for a conflict with any but a first-class Power, since for all minor wars Regular troops would presumably be sufficient. If, on the other hand, this country were engaged with a first-class Power, it is doubtful whether sanction would be given by the authorities to take officers from the Yeomanry, Militia, or Volunteers for Irregular corps, regard being paid to the declaration of policy lately made by the Prime Minister that for the future this country will have to depend mainly for home defence on the Auxiliary Forces. It may, however, be argued that as the necessity for mounted men over and above the Regular forces was never contemplated before the South African War, contingencies equally unexpected may arise in the future.

It is not within the scope of this paper to examine these contingencies, and, in any case, if these troops were necessary, it would probably be expedient to allow a certain proportion of officers to be taken from the Regular and Auxiliary forces. I should consider this a *sine quâ non* for the raising of Irregular troops. I think no one will question the statement that the officer question proved a great, if not the greatest, difficulty, in all the three classes of Yeomanry raised for the war. In addition to these squadrons from the home Yeomanry regiments, there was a considerable number privately raised, such as sharpshooters, rough riders, Paget's Horse, etc.: in these, and in an even greater degree, was felt the difficulty of securing suitable officers. I have, so far, referred exclusively to the squadron officers which were nominated in the case of Yeomanry regiments by their commanding officers. The appointments, however, of the regimental staffs were made by the Imperial Yeomanry committee; it would not be desirable to criticise the manner of appointment, since hurry to despatch the troops to South Africa had an inevitable tendency to overrule careful selection. One commanding officer, within my knowledge, had to select the whole of his staff, officers, and men within a week. It is a platitude to insist on the necessity of these officers being selected with care, but this fact was not less obvious before the war than it is now. Nor should it be forgotten that while each unit composing the battalions was drawn from a particular part of the country, the commanding officers and staff had no similar local origin or local tie with the units. Whence, then, could come thorough cohesion as a battalion?

In the case of one battalion known to me, neither the commanding officer nor any of the staff had seen a single company of the battalion till they arrived in South Africa; it is again a platitude to assert that, if the battalion is chosen as the unit to work with, the commanding officer should have some acquaintance with the officers under his command, and should know the characteristics and capabilities of the men, even if he had not trained them as a battalion. In any future raising of mounted troops, if done by a committee, no doubt rules would be laid down that commanding officers should have had some previous experience of mounted troops—should have had the opportunity of coming into contact with their officers and men, and should have held a high record in time of peace. It is almost too obvious to require argument, that if capable officers are necessary for a cavalry regiment, where everything goes with the precision of clockwork, where all the officers command their own men, where there is a full complement of non-commissioned officers, where the men have been fully trained, that in a regiment of Irregulars, where many of these requirements must, of necessity, be partially lacking, even higher qualifications should be required of the commanding officer.

I now come to the enlistment of men, and the terms of service of the Yeomen enlisted in 1900. The pay was at ordinary cavalry rates —1s. 3d. a day for one year, or the termination of the war. As there was an undoubted crisis in the affairs of the country, men came forward with great alacrity, both Yeomen, and civilians who had had no military training of any kind. Speaking of the large majority, I should have no hesitation in saying that the rate of pay had no influence on the recruiting—as many of the men who offered themselves were of such position as to render them independent of any inducement in the way of remuneration. No doubt in similar circumstances the same class would again present themselves in the hour of danger with the very slightest inducement, or, indeed, no inducement at all so far as pay is concerned. But the length of service had a much more important bearing upon the case; the men were able to secure from their employers leave for one year, but when their services were required for a longer period, it was a matter of vital importance that they should be able to return to their vocations. The period specified was "one year, or the termination of the war," an ambiguous form of words, giving rise to great uncertainty: as a matter of fact the phrase was understood almost universally by the men to mean "One year, the conclusion of the war, whichever came first." In any future enlistment, there should, in my opinion, for this class of men, be no possibility of misunderstanding. Any mistake of that description has the deterrent effect on recruiting, as men feel that they have not been fairly treated. Within my own knowledge, a considerable number of Yeomen who joined in 1900 have, from this feeling, ceased to belong to their home Yeomanry.

There was, however, no difficulty in getting more than enough men in 1900 on these terms, though what proportion of Yeomen to civilians has not yet been shown by an official return. If, however, Yeomen are to be an essential factor in home defence, enlistment in any numbers from these corps would probably not be sanctioned. It should be borne in mind that in the selection of men in 1900, as they were to take the field at once, with only two or three weeks' training, preference had to be given to those who had had a previous

training of any description rather than to men specially qualified educationally or physically.

The question of training after mobilisation, resolved itself into how much work could be crammed into the few weeks before embarkation; this was rendered more difficult by the fact that much of the time of those responsible for the training was occupied in the provision of horses and equipment, and the season of the year, with its heavy snow and frost, was a further and serious impediment. It is perfectly true that all these men had passed a riding and shooting test, but even with this advantage the time was all too short to produce compact and efficient units. The shooting, perhaps, was the best feature in the force, and was considerably improved in these few weeks, and on board ship. Outpost duty, however, and reconnaissance, were of necessity but slightly dealt with, excepting by lectures. The majority of the men had, however, a fairly good theoretical knowledge of this subject. Training of the horses, and the learning of the mounted infantry drill, which though simple was new to all, occupied the remainder of the time. More time would, indeed, have been useful for instruction in horse management, although the three weeks on board ship proved invaluable.

But the greatest difficulty, I believe, felt alike by all who had charge of Yeomanry squadrons, was the provision of non-commissioned officers. The necessary shortness of the Yeomanry permanent training makes it impossible for non-commissioned officers, however intelligent and willing to learn the ordinary regimental routine, to gain sufficient confidence in dealing with men, and to enforce discipline: they have not the opportunities of acquiring the habit of commanding others, nor do they know how much to expect from those under them. It is true that some cavalry commanding officers give opportunities, when practicable, for Yeomanry non-commissioned officers to be attached to their regiments, but comparatively few Yeomen can spare the time to avail themselves of the chance. A certain number of the permanent staff sergeants of Yeomanry were allowed to go to South Africa, and were of the greatest service. Here, again, we are confronted with a difficulty for the future—that their services could not be dispensed with in their own regiments in time of war. The need of non-commissioned officers is felt in the first month or two after mobilisation, as after that time others are able to pick up the details of the work, but it is just then that officers cannot spare the time to do non-commissioned officers' work. To meet this difficulty of at once selecting non-commissioned officers, there was only one method to be employed, to make provisional or acting appointments; this is, of course, unsatisfactory in more ways than one, as frequent reversions tend to make men overcareful of exerting their authority, if not even unwilling to do so. I venture to lay great stress on this question of non-commissioned officers; it constituted a great difficulty even in the 1900 contingent, where the men had for the most part had previous training; it is obvious that the need is enhanced a hundredfold where the men have had no training at all. How different it would have been had the permanent staff of the Yeomanry been large enough to have allowed the provision of numbers of qualified N.C.O.'s.

I shall not spend many moments in the consideration of equipment: I should, however, state that it was the cause of great hindrance and trouble in 1900 owing to the methods adopted. Part

of the equipment was supplied by the Government, and the remainder had to be supplied locally, for which a capitation grant was allowed by the Government. The material for the clothing was supplied from Government stores, and had to be made up by local contractors. The difficulty was not lessened by the fact that there was great delay, and consequent correspondence, in the delivery of the material. The saddlery, again, had to be privately bought, and excessive prices paid in order to ensure an early delivery; the quality, moreover, of the saddlery left much to be desired, but rejections could not be made owing to lack of time. These may appear to be small and even insignificant details, but they proved a very serious hindrance to the efficiency of the units by occupying a large proportion of the officers' time, which should have been entirely devoted to the training of men. Adequate supplies were not available from Government stores. I mention the raising of a Colt gun section, as it is a good example of the difficulties likely to arise when authority is not delegated to a commanding officer, but an intermediary committee is employed, to whom reference has first to be made. I applied in January, 1900, for leave to raise a Colt gun section; for ten days no answer was received, when I was informed that the commanding officer's authority must be obtained; on enquiring the name of the commanding officer, it appeared that he was not yet appointed. After a further delay, I was enabled to get the necessary sanction, which allowed some ten days only to secure a gun section commander, for enlistmnet of men, training and equipment, prior to embarkation.

It is far from my wish to throw blame on those responsible for the arrangements, as they had great difficulties to cope with in circumstances, up till that time, unprecedented. Before leaving the subject of equipment, there is one item which, though it applies equally to all mounted troops, I ought not to overlook—the provision of field glasses. Owing to private generosity in the counties of Lancashire and Northamptonshire, it was found possible to purchase the best Zeiss glasses for more than half the men. This, though a heavy expenditure, was, in my opinion, fully justified by their use in the field. It would seem incontestable if mounted troops are really to be the eyes and ears of an Army that they should be provided even extravagantly in this respect.

The method of providing horses, also, for these troops is not material to the subject under discussion, as it varied in different corps. Some squadrons bought their horses, allowing such men as wished to take their own, subject to inspection. Some were provided with horses from the central authority, and some only got them in South Africa. It was my fortune to be in the first of these categories, and I found the horses most satisfactory, as they lasted for twelve months, and were then handed over, with great regret, by the men to another regiment. There was this distinct advantage, that the men, having their own horses in many instances, took the very greatest care of them.

To summarise, then, what I have said about the raising of this force, the principal points are:—

1. Whether it is advisable to have a superintending committee for the whole force, or for commanding officers, after appointment by the Commander-in-Chief, to act under the War Office.

2. To what extent officers can be taken from existing forces.
3. The provision of properly qualified non-commissioned officers.
4. Absolute clearness in terms of enlistment, and generous interpretation of their spirit by the Government.

The 1901 Yeomanry were raised under entirely different conditions, and were of a somewhat different class. Their pay was at the rate of 5s. a day,—an inducement, no doubt, which secured the requisite numbers, though not unnaturally a source of envy to those who served with them in the field. They were supposed to have passed a riding and shooting test, but they had, so far as those with whom I came into contact were concerned, no training whatsoever before being put into the field. If instances were needed, I can point out that when 80 of these men were put under my command, with a sergeant-major to take them from the railway line to join a column, three-quarters of them had no idea of putting a saddle on to a horse, and many had never done it in their lives. It took on that occasion eight hours to saddle up and move off. What would have occurred had the enemy made an attack before the column was reached it is not pleasant to imagine! Under these circumstances, it is not to be wondered at that they did not at once accomplish all that was expected of them. I think it is sometimes forgotten by their critics that their shortcomings were due to no fault of their own; and I can say, from my own experience, that I never met men more anxious to do what was required of them. It was found necessary, after a short period, in the field, to take them to places where they could be trained in security, after which they did most admirable service to the end of the war.

The points to be gathered from this experiment are too obvious to require enumeration.

I now come to the Yeomanry raised in 1902, which, for the purposes of this discussion, gives more instruction than either of the two already mentioned. Towards the end of 1901, as more mounted men were required for the war, it was decided to raise regiments of Yeomanry territorially. Some eight officers were invited to undertake the raising and command of these regiments; as some dissatisfaction had been expressed with regard to the previous Yeomanry, the regulations for recruiting proposed were very stringent. None but ex-Regulars, Yeomen of three trainings, or Volunteers were to be taken, or men who had already served in South Africa. It was found impossible to raise men on these lines, as those who had been in South Africa had just returned to their employment, and, even if willing, could not in most cases have procured leave. In the home Yeomanry regiments, owing to their large increase and to the demands already made on them, there were few men of three years' training available. This plan was therefore modified, and recruiting commenced on January 1st, 1902. No riding or shooting tests were required, the only qualification being physical. The rate of pay was again 5s. a day as in 1901. The men were sent immediately to Aldershot to be trained, where there was a small depôt responsible to the Yeomanry committee in London. Recruiting was so brisk that the Aldershot staff was utterly unable to cope with their task, and in a few days they had thousands of men, and only a handful

of officers to train them. The commanding officers had, I believe, been principally appointed by the Commander-in-Chief, and when they took up their commands the task was by no means easy. One of them, a Regular officer, told me that he had, on arriving at Aldershot, 500 men handed over to him, single-handed to deal with as he might: all that he could do was to march them down to barracks, and serve them out bedding. My own case was nearly as bad; being without a second-in-command, a quartermaster, and all four squadron leaders, I had to commence with an adjutant and a few subalterns, the latter of whom had still their duties to learn. Nor were there any non-commissioned officers to instruct the men. The task seemed hopeless enough; matters, however, improved by the assistance of officers and sergeant-instructors from the home Yeomanry. The difficulty that had first to be met was to secure officers. Some had already been appointed by the Yeomanry committee, but as the men were to sail in two months, it was absolutely necessary to get squadron leaders at once. No demonstration is needed to show that squadron officers should get to know, and themselves train their own men. But here was an insuperable obstacle; before any officer could be appointed his name had to be submitted and approved by Yeomanry Head Quarters; it was then passed on for approval to the War Office, when, after the necessary references had been made, it was again returned to the Yeomanry Head Quarters, and finally arrived *viâ* Yeomanry Depôt, Aldershot, to the Officer Commanding the Battalion. And meanwhile precious days and weeks were slipping away, to the dismay of those responsible for the troops. It should also be noted that should any of the officers appointed by the Yeomanry Committee prove unsuitable, the responsibility fell upon the commanding officer of "breaking" them. As there was a considerable number of cases in which this course was inevitable, the odium necessarily fell, in my opinion very unfairly, on commanding officers, who were in no way responsible for the bestowal of the commissions in the first instance. This trouble might have been largely obviated had commissions been withheld till the commanding officers signified their approval of the appointments.

As great, if not greater, difficulty was felt in securing capable non-commissioned officers. There were three possible sources of supply:—From the Life Guards and provisional cavalry regiments; from the permanent staffs of Yeomanry regiments; and from ex-Regular cavalry soldiers. No cavalry soldier would dispute that to train within a short time, men with no experience of horses at all, to teach the merest elements of horse management, one squadron-sergeant-major and four troop sergeants per squadron, is an irreducible minimum; but nothing like half this number were available. Two regiments, Irish and Scotch, were able to get a certain number of non-commissioned officers from the Guards regiments, but with those exceptions, no non-commissioned officers could be obtained from the first-named source. Officers commanding provisional regiments naturally objected to part with any of their sergeants, and only a very few were allowed to be taken from Yeomanry regiments; nearly all had to be taken from ex-Regulars and civilians.

The next difficulty was that of horses. The average number of horses available for each battalion of 500 men at Aldershot was about 70. But using the horses twice every day, it was thus possible to put each

man on a horse barely twice a week. That a general level of efficiency in riding can be obtained under these circumstances, is a proposition almost too ludicrous for discussion. However, by eliminating all those who could ride at all, and devoting the horses entirely to the worst riders, a better result was arrived at than seemed at first possible; the men were able, as a matter of fact, to ride sufficiently well after two months to go into the field in South Africa, and after four months they could do what the Boers did, gallop and fire from their horses without getting out of hand. I feel bound to add, what was the experience of every commanding officer without exception—that this was due to one thing only, the quite extraordinary and unflagging keenness of the men. This remark applies not only to riding, but to every detail of shooting and drill, and although they were detained in this country for two months longer than was at first stated, their energy was unabated to the end. I consider this a most important fact: after 2 years of war, when very large numbers of Volunteers had gone to South Africa, by the inducement of 5s. a day, it was possible, at a moment's notice, to get within a fortnight 5,000 men of this class. Recruiting on this scale, and with this rapidity, was far in advance of the expectations of the authorities, as was demonstrated by the inadequacy of the preparations at Aldershot.

Nor was the general conduct of the men less a matter for congratulation. Notwithstanding the high rate of pay, there was hardly any crime at all either at Aldershot or when they reached South Africa. If in the future, then, there should be occasion to raise troops hurriedly, we have the satisfaction of knowing there is always this asset to count upon. I submit that the reason for this was that by the high rate of pay the labour market was really tapped.

Their shooting, also, was beyond what might naturally have been expected, though, no doubt, this was partly due to a certain percentage of Volunteers, and owing to the extended period of training it was possible to put them through two courses of musketry. Their efficiency was further improved, especially in snapshooting, by continuous firing on board ship—the ammunition, of course, privately provided.

Of the training of these men much need not be said, as it differed in no respect from the training of ordinary mounted infantry. As time was so short, a large proportion was given to mounting and dismounting, and leading horses. It was, of course, necessary to drill at first in close formations, if only for the management of their horses, before proceeding to extended movements. Latterly, I found a useful exercise in suddenly dismounting all the men of a squadron at once, in view of a sudden attack, firing one round or two, and mounting again. In learning the work connected with protection of convoys or scouting, it was most difficult to teach the men to keep in touch of each other, and to avoid exposing themselves on the sky line; but owing to their high standard of intelligence, they were very quick in picking up outpost duty and reconnaissance.

The equipment was entirely supplied by Government, and was drawn from store without any hitch or delay. There is one further point which, though it may apply in part to Regular soldiers, is particularly important in troops hastily raised; it is impossible for the recruiting officer, however careful he may be, to avoid making some mistakes in the selection of the men. A commanding officer should

therefore have the power of discharging undesirable men on the ground that they are not likely to become efficient soldiers. This power was granted to the commanding officers of the 1902 Yeomanry; it is impossible to say what harm may be done by a few undesirable men, and the knowledge that this power exists has a very salutary effect on idle or doubtful characters. I do not think there need be any apprehension that this power would be used to excess, as, with the limited period of training, frequent changes would be undesirable.

The points to be noted, then, in the 1902 Yeomanry seem to be:—

1. The men were secured first, instead of officers and non-commissioned officers.
2. Difficulty and delay in getting officers and non-commissioned officers.
3. Insufficiency of horses for training.
4. The excellence of men obtainable on the terms.

In considering, in conclusion, what would be the best method in the future of raising mounted troops, there are certain premises which must be laid down:—

In the first place, I limit the area to England or Great Britain. If mounted troops are again required from the Colonies, they will all have their several methods of raising them, and will view any interference from the War Office with suspicion and dislike.

Secondly, I assume that the period of raising and training must not exceed three months, as, if they were wanted, they will probably be wanted in a hurry.

Again, the conditions under which they are raised will vary greatly according to the Power with which we are at war. If we can conceive it possible that we should be again engaged in a war of similar magnitude and conditions to that in South Africa (when the shores of these islands were never threatened), the problem is much easier than if our opponent was some European Power. However strong our Navy might be, we may not unreasonably assume that the authorities would be very reluctant to allow either officers, non-commissioned officers, or men, to be drawn from those forces to whom the land defence is entrusted. In such a case, probably every available man in the Reserve of Officers would be required to fill vacancies from wastage in the Regular Army. My premise, however, is this: That if such a force is to raised within the time, all officers of the rank of captain and higher must know their work thoroughly. In the 1902 Yeomanry, most of the subalterns had been in South Africa as troopers, and, therefore, had much to learn in the details of their duty and in handling the men. But with competent squadron leaders, they were able, in a very short time, to do all that was required of them.

The question that the authorities would have to decide would be whether the provision of the proper cadres of officers from existing forces would be justified by the results. I venture to think, in view of the class of men that can be obtained at a higher rate of pay, it would be more than justified. The demand for officers would not be a great one in point of numbers: to supply officers for 5,000 men means only 30 colonels, majors and adjutants, and these, I suggest, should largely be provided from Regular forces. I put 9 really

qualified officers per regiment as the irreducible minimum to be provided: 1 colonel, 1 major, 1 adjutant, 4 squadron leaders, 1 quartermaster, and 1 veterinary officer—the last-named a civilian. The captains should be provided principally by Yeomanry regiments, and to effect a proper selection I would have a small permanent committee with a paid secretary who should meet at stated intervals, perhaps four times a year. I should propose that this committee should be composed in part of Yeomanry commanding officers, and Yeomanry adjutants. In this way the numbers of officers available in any district, and their military capacity, would alike be placed on record. In all three forces raised in 1900-01-02, there was a common difficulty—getting at a moment's notice properly qualified officers. No committee, however well-intentioned, could secure this object thoroughly without making enquiries, which must take a long time. One of the principal duties of this committee would be to keep lists of officers available in an emergency. These lists would of necessity change from year to year, and would entail a considerable amount of work.

I should further propose that any officer whose name was on the list at the time the force was raised might be taken without further reference, excepting mere notification to his commanding officer, or any higher authority in the district. By this method, the delays that were so injurious in the forces I have mentioned would be entirely avoided.

This committee would also report on possible places for mobilisation, training grounds in the various counties, and other subsidiary local questions relative to the raising of such a force. They might also have lists of saddlers, farriers, shoeing smiths.

It may be asked what reason there is for creating a new body in addition to the existing organisations. To that the answer is that at such a time the War Office would be so overburdened with work that it would be obliged, as before, to delegate some of its duties to another body, and a committee hastily constituted would have but a small chance of efficiency. Nor could reliance be placed on the Yeomanry organisations, as very probably they would be fully engaged in mobilisation themselves. During the South African war, it is true, they did the giant's share of the work, but it would be unsafe to reckon on an exactly similar chain of circumstances again. It would be necessary, of course, that a section of the committee should have no other functions in case of war; these members would then be alone responsible that the work the committee had done in time of peace should be utilised. And this committee would, of course, be a purely advisory body to collect and return information to the authorities responsible for action on the outbreak of war. Nor would the expense be a great one. A sum of £1,000 a year would, I think, meet the expenses of the secretary's salary and his office, with, perhaps, a small remuneration for the members of the committee. I do not suggest that this body should have the same duties or powers of the late Yeomanry committee. My suggestion would be that the commanding officers should be appointed by the Commander-in-Chief, and should thereafter have entire responsibility for their regiments under the War Office; they would apply for such number, if any, of Regular officers as the War Office would sanction; they would then have recourse to the new committee for their other officers, and for all

other information which the committee had collected regarding non-commissioned officers, artificers, men, mobilisation, etc.

I now come to my second proposition, which deals with the provision of non-commissioned officers, perhaps the greatest crux in the forces raised during the war. One of the features of the new Army proposals of 1901 has been the increased numbers of and expenditure on the Yeomanry. On the merits of that change I desire to say nothing; perhaps those who have a right to speak on the lessons of the war would agree that, given efficient officers and non-commissioned officers, civilians can be quickly improvised as private soldiers, if they be of a sufficiently high physical and mental standard, to be of great utility in the field. My proposal, as may have been gathered, is to increase the permanent staffs of Yeomanry regiments at home; if an addition of only 2 sergeant-instructors per regiment were made, that would give 108 non-commissioned officers. These men would be invaluable, as all officers commanding Yeomanry would agree, in time of peace in increasing the efficiency of the regiments to which they were attached. In the Duke of Lancaster's Yeomanry it is found necessary to pay four extra sergeant-instructors in addition to those provided by the Government; their pay is, of course, found by the officers of the regiment: I have no doubt that this is no solitary instance. These men would, under my proposal, be registered for service with Irregular troops if required. If this were carried out, the Yeomanry regiments would be greatly improved during peace, and would be no worse off than they are now in time of war. The expense is the objection; but I submit that full value would be received for the money, if the men were never required to form cadres of Irregulars; and, indeed, if this objection were insuperable, I venture to think that so far as efficiency is concerned, it might be economically met by a reduction in the numbers of men on Yeomanry establishments. There would then be 108, which would provide 1 regimental sergeant-major, 1 quartermaster-sergeant, 4 squadron sergeant-majors, and 8 troop sergeants at once for 8 regiments of 4 squadrons, or about 4,000 men. The remainder of the non-commissioned officers might be supplied by ex-Regulars or ex-Yeomen. There would be a further advantage in this proposal, that these men, in the course of their employment, would get to know a number of desirable recruits, on whom they could at once lay their hands. In considering the cost of this proposal, I find that a cavalry private costs the country £58 16s. 9d., and a Yeoman £19 13s. 6d. per annum. If we take these cavalry sergeant-instructors roughly at £100 a year, and the Yeoman at £20, the 108 men would cost £10,800, or the cost of 540 Yeomen. My proposal is to reduce the men on the Yeomanry establishment by 540 in lieu of 108 qualified instructors.

Having now made provision for the cadres of officers and non-commissioned officers, the question of men remains. On this point we have definite data on which to rely. We know that for 5s. a day, or possibly a smaller sum, even in unfavourable times, a splendid class of men can be obtained. I have only one remark on this to make: it is essential, if the best work is to be got out of these men, that the Government should act generously up to the limit of the terms of engagement, and not allow any suspicion to enter the men's minds that the Government wish to get the best of them, or pare away the agreement made. I can name many instances in which such suspicion

has justly, or unjustly, been entertained during the late war. Two will be sufficient to show my meaning.

The first Yeomanry sent out understood that they were going for one year, and thought that in being detained longer they were unfairly dealt with: had the existence of that impression been fairly faced, and had they been asked to continue their services, a very large number would have consented to do so.

Again, the 1902 Yeomanry, when the war was over, were told that if they would forego their special war gratuity of £5 they would be allowed to go home at once. In the regiment of which I had the command, practically all would have gone home in September, 1902, but for this demand, and a large sum of public money would have been saved. As it was, only a little over a hundred consented to waive their undoubted rights, the impression being that the Government were trying to evade the original agreement. It may possibly be that Irregulars, whether English or Colonial, are unduly suspicious of their treatment by the authorities; but, in any case, it is an important factor not to be overlooked in dealing with such troops.

The equipment should be drawn as in 1902, entirely from Government stores. Horses also, if possible, should be provided by Government, but failing that, commanding officers might be entrusted to buy them as in 1900, with a maximum limit per horse fixed.

The principal obstacles that had to be faced in 1900 and 1902 were the great delay in getting officers approved, and in securing non-commissioned officers. If, however, some such plan as I have suggested were adopted, by which commanding officers could at once secure their cadres, if equipment and horses could be drawn immediately on requisition, training could be commenced within a week of opening the lists for recruiting, and within three or possibly two months, the regiments would probably be ready for the field with proper complement of signallers and gun section. I think I ought to guard myself against one possible misconception. I must not be held to lay down the proposition that it is possible to turn out a perfect mounted infantry soldier in three months. It is my opinion, however, that, given the officers and non-commissioned officers I have mentioned, and the intelligent class of men obtainable at 5s. a day, it is quite possible to get a very serviceable force within three months. They might be reasonably expected to shoot as well as the Regular soldier who, in time of war, is drafted for service; to ride well enough for any requirements similar to those in the late war; to know the rudiments of horse management and the fitting of saddlery, and their mounted infantry drill. To expect them to be efficient scouts would be absurd, though they could get a moderate theoretical knowledge, so far as could be acquired from text books and lectures. Is it not indeed very doubtful whether, in a highly cultivated and thickly populated country like England, scouting can be fully taught to any kind of soldier? Under the existing conditions in this country, and the inadequacy and insufficiency of training ground, it is impossible to secure a general level of efficiency in scouting.

There may seem to many no conceivable emergency in which such troops would be required; but those who are so sanguine now, were probably not less sanguine before the late war. The importance of raising an effective force from civilians must be present to the mind of every thinker on military problems. As to the exact value of any such suggestion, it is for military experts to decide.

I have attempted in this short paper to indicate what I believe to have been some of the defects in the past experiments. I trust that my hearers will forgive the many imperfections, of which no one is more conscious than myself, and perhaps outline some other plan to meet whatsoever chances the future may have in store. All that I have ventured to do is to set down facts which have come under my observation, and the conclusions which these facts have compelled me to adopt. We all owe to our country the service of our sincere convictions, and one may hope that the convictions of the many may furnish material for the wisdom of the few.

PART II.

By Major J. E. B. SEELY, D.S.O., M.P. (Hampshire Carabiniers, Imperial Yeomanry).

MAY I first say how very deeply I appreciate the honour the Council of this Institution has done me in asking me to make a few remarks on the subject of this lecture. May I also say that I would ask you to believe that the considerations I shall advance are not considerations which I have arrived at for the purpose of this lecture, or which I have lightly arrived at, but that they are the result of considerable thought on this matter, and of thought at a time when perhaps one thinks best—at a time when one is actually engaged on the work in question. You will notice that at the beginning of my *précis* I have put—"A consideration of the problem of the kind of man required to act efficiently as a mounted man in modern civilised warfare." I have begun with that because it seems to me that with Irregular troops that is the most important thing. May I, before I go further, explain that in all I shall say, especially in the first part of my few remarks, I refer only to Irregular troops, because I think it cannot be too often insisted upon that the difference between Irregular troops and Regular troops is a difference, not of degree, but a difference of kind, when you are discussing the question of how you are to raise them and train them. The troops that our Chairman has now to train are men who are under his command for so long, that whatever they may be when they come to him, by the example he can show them, and by the long period for which he can instil into them the arts which he has so ably exemplified in war,—for so long has he those men with him that they can be converted into something quite new, quite different to what they were when they came to him. Whereas with Irregular troops it is obvious that the man, as you get him for a start, will be but little changed by any instruction you could give him. It seems to me that it is idle to suppose that a week, a fortnight, three weeks, or even a month in camp once a year can really alter the kind of man you have got, and consequently what is of real importance is, What kind of man you have got for a start?

That being so, I would ask you to consider for a moment what is the kind of man you require and that you must have if he is to act efficiently in time of war, and especially in modern war. I would say that his necessary qualities, or at least his desirable qualities, are firstly, that he should have some acquaintance with country life, that

he should not be wholly new to all the different little things which to all of us come quite naturally from having been associated with the country, one way or another, since we were boys. Nothing struck me more, when I took over the command of a large number of what has been termed the new Yeomanry, than the fact that those who came from towns, of whom there were a great many, lacked the knowledge of all kinds of things connected with the country which it had never occurred to me as possible that every man would not know as a matter of course. I will not weary you with the details; but such was the case, I assure you. It was perfectly extraordinary that there were men in this country who were anxious to serve their King and country—and they served them well in the end, as Colonel Kemp has told you, and as I know full well—who had no knowledge whatever of the country or the common objects, not of the sea shore, but of the country. As we fight our battles mainly in the country and not in towns, it seems to me desirable that they should have some knowledge of country life. It seems also that, in addition, to accurate rifle shooting as learnt at fixed targets on a range, they should have some knowledge of shooting at moving objects. I believe that gallant officer Colonel Le Gallais used to say that if you would give him a man who could hit a button at 20 yards, and shoot a rabbit crossing a ride, he would be the finest shot for the purposes of a war that you could possibly give him, and I suppose the many distinguished officers that I see around me here would agree to that proposition. There are other qualities—courage, character, common-sense, confidence in the leader—and in that I would include absolute and rigid discipline in essentials—all in addition to the more mechanical arts of riding and shooting.

In the second part of my *précis* I have said: "Let us now consider how many of these desirable qualities are quite essential in the recruits that you are going to raise in the next war." Well, of course, it is desirable that the man should know something of the country, and, either by his business or by his pleasures, be connected with it in some way. No doubt it is desirable that he should be a good shot at moving objects; but both these things, perhaps, may have to be done without. But the courage and the character, the common-sense, and the confidence in the leader, the riding and the elements of shooting are essential.

Those being the essential qualities, we next have to consider how many of those qualities are inherent in the man, and how many of them can be taught. Here I am well aware that I shall run counter to the opinions of many other persons; still, I will state to you my own belief. First of all, we cannot teach courage. We are all agreed that this is even more essential in modern war than it was in ancient wars, because the strain is much greater owing to various considerations; the invisibility of the enemy, the long range at which men begin to be killed, and many other circumstances, all of which make the strain of war upon the minds of men far greater than it was in the days when we fought our battles at closer range. You cannot teach that. Then with regard to character, of course you cannot teach that. General French may teach it in some measure to the men who are with him several years because, partly by example, partly by association with the traditions of a regiment with a glorious past, you may get the kind of character that I mean instilled into a man. But you obviously cannot do that in the case of the Irregular; in fact, I fear you cannot teach it to him in any way at all. When I

talk of character, I do not mean that no man is to fight his country's battles unless he has been an exceptional person, who never did any wrong; the phrase that describes it—if I may use a slang phrase—is the man who is anxious to "play the game," the kind of man that you would choose if you were making up a cricket or football eleven. "To play the game" is all the more essential in modern war, where the man is so much further removed from his officer than he was in the wars of ancient times. You cannot teach that. Now, the confidence in the leader: can that be taught? I think, to a great extent, it can, for it can be acquired by the method in which you raise your Irregular troops. If you raise your Irregular troops on a strictly territorial basis, if you are determined that your officers shall be known to the men whom they are to lead, you can generally be pretty sure of that confidence in the leader which is so essential. In the late war in South Africa, nothing was more apparent to everyone who was concerned in it than that in the case of Irregular troops, where they were recruited on a strictly territorial basis, they were almost uniformly successful. Where they were recruited on a different basis, and where the officers had not seen their men until they actually got to the front, of which Colonel Kemp gave an instance, they were not so successful: and it must be so. In that way perhaps, you may say, this confidence in the leader can be, in a measure, if not taught, acquired. In confidence in the leader I have included discipline, the rigid discipline in essentials. Can that be taught? I believe it can. In this matter, for the first time I must give you my own experience. You will, I hope, forgive me doing that, not that my experience is of much importance, but because it is naturally the one I know most about. I know that many persons are doubtful whether Irregular troops can be relied upon for that absolute and rigid discipline which alone can save you from disaster at moments of extreme stress and trial. With the men I commanded in South Africa, the original men, I can honestly say that never once did I give an order that was disobeyed, and I never once had a man brought before me for a serious breach of discipline or for disobeying an order in the field. And yet there were many occasions when it would have been pleasanter to have disobeyed orders; in point of fact, two out of a small number of men absolutely threw their lives away in order to save their comrades—that well-known moment, which has occurred to so many soldiers in South Africa, when the word "hands up" was given by the enemy, when the putting up of the hands would involve the remainder tumbling into the same trap, and on the other hand when the letting off of the rifle must involve certain death. That is the highest test of discipline, I would submit,—absolutely the highest of all, where a man has to choose between throwing his life away for the sake of what he knows is the order that his officer would give him if he were there, or surrendering at once. Therefore, I say, from that one instance —and of course it could be multiplied indefinitely—you may have the highest possible form of discipline in an Irregular corps.

Then we come to the question of horsemanship and horse-mastership. The first undoubtedly, to a certain extent, can be taught; although a man who has been accustomed to horses all his life will have an immeasurable advantage over the man who has not. Still, we did find that people who had not been accustomed to horses did learn to ride pretty quick. But perhaps our Chairman would agree that it was partly owing to the fact that the South

African horses were generally uncommonly quiet. One can, to a certain extent, teach horsemanship; but I am afraid one cannot teach horsemastership. You cannot teach men to really look after their horses if they have not been accustomed to do so—not in the short time at the disposal of those who have to raise Irregular mounted troops for this past or any other war.

There remains shooting. No doubt that can be taught, though it takes a very long time.

Still, it can be taught, and taught very easily, by the firing of an enormous number of cartridges, and in no other way. I would suggest for that purpose that greater use should be made of short range shooting, a thing which I have to a certain extent made a hobby of, and which I really believe has great possibilities. You cannot, in a country which rightly studies economy, get enough full-charge ammunition, or enough long ranges, to make a man a really efficient shot, either in peace-time or in preparation for war. But again I would quote the distinguished officer, who said that if a man could hit a button at 20 yards he could hit a Boer at 1,000. I do believe that practice at short range, provided it is in the open air, is exactly and precisely as valuable as practice at long range. It costs about one-sixth of the sum in ammunition; it costs about one-hundredth of the sum in the provision of a range for the purpose, and, for the same reason, takes up a small percentage only of time, because you can carry it out almost anywhere. I will not weary you with figures which I have obtained with reference to this short-range shooting, but I can assure you they are most remarkable, and that from experiments which have been carried out by myself and others it has been ascertained that men who have been trained only at short range, on the very first occasion when they shoot at long range are practically as good shots as if they had learned at the long range. I have tried this thing experimentally myself with men who I have known have never fired a shot at long range, and the scores they made (which I sent to the Commander-in-Chief, who takes a great interest in this matter) were really quite extraordinary.

Well, you may say, you have explained to us your view as to what can be taught, but you have said nothing as to teaching men drill, and you have said nothing as to teaching them manœuvring and fighting. I have said nothing about drill, because though it is very essential to have a certain amount of drill, it can be very quickly learned by intelligent men, and none but intelligent men, as we predicated, are of much use as mounted men in modern war. But as to teaching the art of fighting, I would say that I have said nothing about it because I believe it to be wholly and absolutely impossible. I think that of all the foolish things a soldier is ever asked to do, the firing of blank cartridges at an imaginary enemy, or at a real one—firing sham bullets, and then dashing forward with incredible valour and bravery, because there is no danger whatever—I say of all foolish things that strikes me as the most foolish. I suppose we all hate shams of every kind, but I think of all shams the most pestilent sham is a sham fight. I am surprised to hear sounds of approval, for I feared I should not carry my audience with me, but in point of fact I do strenuously believe that to be true. I believe that not only do sham fights not do men any good or teach them any valuable lessons, but I am convinced that every time a man is engaged in a sham fight in which he fires and is fired at with blank cartridges, he is made so much the less an

efficient soldier. He learns wrong lessons, he gives himself a false idea of his own courage and determination, he gets a false idea of what is likely to occur; and the reaction that takes place when he goes into action, where the bullets are real, I believe has the most disastrous effect upon his morale. I know that that may be a somewhat novel proposition; but when I was in South Africa I took the trouble to ask many of those with whom I had a moment's conversation this simple question: "What is there that you ever learned on a field day that has been of any use to you in this war?" and, without a single exception, Regulars, Auxiliaries, officers, non-commissioned officers, and men replied the same: "Not one single thing." But if this be true it is generally assumed that it is because our training at sham fights is the wrong kind of training, and that if we had a better kind of training at sham fights that the lessons to be learned would be most valuable. But I entirely disagree with that. I think any attempt to foreshadow with sham bullets the horrible reality of fights with real bullets is foredoomed to failure, and that therefore the words of a great German strategist are probably true when he said that all manœuvres were valuable until the troops came within range, and that then they should always stop. I believe that to be a truth, and I believe it to be a truth which has a profound bearing not only upon the raising of Irregular mounted troops for war, but also upon our whole military policy.

We have discussed first of all what sort of a man we want; we have discussed what are the essential qualities that he must have; we have discussed how many of those you can teach, and we have discussed very imperfectly, how you can teach them. I have gone on to ask: In what classes will these men be found? You will, of course, find them amongst all well-to-do classes, all the public school boys, and those who have been at college, whose vocations or whose pleasures take them constantly to the country, and whose vocations or whose pleasures cause them to use guns or rifles—and after all the man who can use one can use the other. Also you will find them amongst those whose occupations and whose business, apart from the well-to-do, take them into the country. You will find them amongst farmers; you will find them among people who live in country towns and who have business in the country—auctioneers, estate agents, and many others. But where else will you find them?

This brings me to the last question I have asked: how many are there? It is not a pleasant question, but it must be faced. I would say that there are not very many. I have said that I had the privilege to command a squadron of Yeomanry, and I must add, because it has a bearing upon the question, that I was singularly fortunate. There is no doubt that the men I had the honour to command were most efficient mounted men. Indeed, it must have been so, because, out of about 100, no fewer than 18 received commissions in various portions of His Majesty's forces as a reward for their services. That is a record so extraordinary that I venture to name it to you, as showing that there are a certain number of men in this country who are ready-made soldiers of singular capacity, for these men who were promoted—some of whom, I grieve to say, were killed—did most excellent service as officers. I have ventured to give my own squadron as an instance of the first levy of Yeomanry, of whom there were 10,000. The second lot of Yeomanry were the subject of much comment that was quite unmerited, because, although

some of them could not shoot and ride, they never said they could. After a time they did admirable service, as you will read in the official history of the war. The services rendered by the Colonial corps were very great, but it must be remembered that the number of men of this very high standard was not unlimited. It begins to be apparent that in this last war we did want a very much greater number of men such as I have described than were really available. I know we have often heard it said that it was a very big war, and that we shall never have such a big war again. But what occurs to me is that if we go to war at all with any white people, the South African war will appear, by comparison, to have been a very small one. After all, there were only 70,000 Boers, with additions which certainly would not make them up to more than 100,000, whereas any white people, except, perhaps, Venezuela, with whom we have happily escaped further trouble, could put into the field two or three millions. It seems apparent that, whatever difficulties we have had in finding men for the war just concluded, they will be ten-fold exaggerated if we go to war with anyone else. But unfortunately the average man, from the Cabinet Minister down to the man in the street—I except my hearers, who have far greater knowledge on this matter than I have—the average man has a wholly erroneous notion of what modern war is going to be. He keeps on believing that the Boers were a very extraordinary people, who required a great many more men to defeat them than will ever be required in any other war. I should say that the Boers were an exemplification of a change that has come over the whole world, with the solitary exception of England, in which every man has undertaken to fight for his country, and consequently, without need for compulsion of any kind, is quite certain to make himself an efficient soldier, because he thinks if he has to go, in any case he may as well go prepared. We are brought then, to this conclusion. The Boers caused a great famine for mounted men. In all modern war it is conceded that mounted men will be more and more required. We required so many men, not because the Boers were such an exceptional people, but because, if you go to war with a people, all of whom are soldiers, you require immense numbers. Therefore it does seem a disquieting thing to consider how few men we have got whom we shall be able to turn into ready-made soldiers when next we go to war. How are we going to raise the Irregular mounted troops that we shall inevitably require for the next war?

You will say, "But you have not said how many there are." We know there were 10,000 excellent men who left this country for a start; we know that, of the remaining men, about 18,000 altogether that went later, many were excellent, but still a great many of them had not the necessary knowledge. Therefore, shall we say we know that there were about 15,000? Then from the Colonies, how many? Well, not so very many; in point of fact, taking into account the various strategic considerations, I do not think it would be wise for this country to rely very greatly on the Colonies for numbers in the event of a great war, although I think we might rely upon a great efficiency from those we do get. I am bound to say I believe that we cannot count on getting 50,000 really good men suited for mounted troops from irregular sources for the next war; and yet I think it is probable—I know it is the opinion of many others, and especially of some distinguished officers I see

in the room, but I think it would be hardly fair to quote their opinions—that we should require far more than that when next we go to war; and, if we do not go to war, we need not have an Army at all. So it is rather a disquieting question we are dealing with. What should we do? One obvious thing to do is to try and get everybody to learn one of the things that can be taught, and that is the art of shooting. That would be a very great advance. If every man were a ready-made shot it would be an immense advantage. And, after all, in that case, the people that could ride would be able to shoot too, which is not the case at present. Another thing that might be done would be to increase our Regular cavalry at the expense of our Regular infantry. We know that the country is not now prepared for any increase in expenditure; in fact, I have heard it rumoured that there are persons who wish for a diminution. It is obvious that it takes very much longer to make a cavalryman than it does to make an infantryman; and although it is not desirable to improvise either, you can improvise infantry ten times as easily as you can cavalry. Therefore I would suggest, as a way out of the difficulty, that you alter the proportion of mounted men to dismounted men in our necessarily small Army. I think that will probably commend itself to the Chairman, but whether it will commend itself to the other distinguished officers I see here I do not know. But there is another thing which might be done, which would enormously increase our strength, and that is that a different spirit altogether should inspire those persons, whom I first described as being efficient mounted men, if they would only come—I mean, broadly speaking, the gentlemen of England. We hear over and over again—I have heard it in this Institution—passionate entreaties to the country to wake up to a sense of its responsibilities, that every man should be a soldier; but I do think that if this is to be done the gentlemen of England should lead the way, and that they should lead the way in a manner quite different to what they are doing at present—that it should be regarded as a disgraceful thing for a man who has had all the advantages that a well-to-do position gives him, a man who has all those qualities which make an efficient mounted man from the nature of his occupation, riding, shooting, and the like—it should be regarded as a disgraceful thing that he should not, in some way or other, be a soldier. I think, perhaps, it might be as well to point out that there is nothing very degrading in his not being a soldier in the commissioned ranks, because, after all, that is the case in every other country; and in the South African war, many men who served under me, to take only one instance out of many, were born and bred a good deal better than their leader.

I must thank the company very much for having listened to me at rather greater length than I had originally intended, and you, Sir, for the honour you have done us in presiding on this occasion.

Colonel A. G. Lucas, C.B., M.V.O. (The Duke of York's Own Loyal Suffolk Hussars, Imperial Yeomanry):—Unfortunately I only heard late last evening, quite by accident, that this discussion was to take place to-day, and I have therefore not come prepared to speak, and as I am obliged to leave to catch a train in five minutes my remarks must necessarily be very brief. In my position of Deputy Adjutant-General for the Imperial Yeomanry for the past three years I was more or less responsible for the

raising of the force of 37,000 men who were sent out to South Africa, and from my experience I can bear out many of the remarks which have been made in the paper just read by Colonel Kemp. There is one very important matter he touched upon, which I think requires the serious and early attention of the authorities, namely, the necessity of having a reserve of auxiliary officers in this country. This is a matter which I drew particular attention to in my Report on the first force of Imperial Yeomanry that was raised for South Africa. Some strong criticisms have been made, in the Press and elsewhere, with regard to the class of officers that were appointed to the Imperial Yeomanry force, but I venture to say that only those who were connected with and responsible for the raising of that force are aware of the great difficulty experienced in finding officers at all, at a time when the country was practically denuded of officers of all branches of the Service. I think the attention of the authorities should be drawn particularly to this matter, and that some scheme for a reserve of officers should be started at once; and I hope the new Advisory Board which has lately been appointed, and which I strongly advocated some two years ago, will take this matter into their immediate consideration. I much regret that my time is so limited, and I am unable to enter more fully into this discussion, but beg to say that all my criticisms, and the history of the raising of the original force of Imperial Yeomanry in 1900, and my suggestions thereon, are contained in the blue-book which was presented to the Secretary of State in the autumn of 1900 and was laid on the table of the House of Commons; and the further history with regard to the second and third contingents, which has been submitted to the Secretary of State and is now in his hands. These two books contain the whole history of the various forces raised, and I feel sure when the latter report is published it will be of value to those present, who have shown so much interest, by their presence here to-day, in the matter now under discussion.

Lieut.-Colonel E. GUNTER, *p.s.c.* (late East Lancashire Regiment):—I would ask this meeting to urge upon the Government by every means in their power the advisability of taking steps at once towards the forming of *permanent* corps of mounted infantry. At least three permanent regiments should be formed at home as a nucleus. We all know the value of the work done by the mounted infantry in South Africa. If these regiments had been previously organised and the officers and men accustomed to work together, the result would have been even more successful.[1]

The CHAIRMAN (Lieut.-General Sir J. D. P. French, K.C.B., K.C.M.G.):—I have very little to say; but I think if the object of lectures in this Institution is to stimulate thought, to encourage good, sound ideas, and to have such ideas put before one in the best manner, that object has been attained this afternoon. I have seldom listened to lectures more full of interest. The subject, in a country like ours, is of the utmost importance. The time is short, but there are one or two points I should like to touch upon. The first is this. It seems to me that the experience of the

[1] I was unfortunately obliged to leave without being able to take further part in the discussion, otherwise I would have explained that, though my remarks may not have seemed relevant to the training of *Irregular* mounted troops, yet if permanent regiments of mounted infantry were formed and trained at our chief camps of instruction according to recent war experience they might serve as a type or standard in accordance with which schemes for the training of Irregular troops might be framed, besides being a valuable addition to our Regular forces.—E.G.

last war taught us one thing more than any other, with regard to Irregular mounted troops, viz., the extraordinary speed with which they developed to efficiency from what I cannot help describing as apparent inefficiency. It was perfectly marvellous to me to see the rapid progress they made. There is one corps that I should like particularly to name, a colonial corps, which I think was raised from all parts of the country, and contained every kind of element—the corps which is so well known as the Imperial Light Horse. At the battle of Elandslaagte that corps rendered the most inestimable service. It is not too much to say that the success of that action was in a very large measure due to the magnificent flank attack they made. They had been in existence only a few weeks, but their performance shows what work can really be done by an Irregular corps in which you find good officers, good non-commissioned officers, and the very best class of men, animated by such a spirit as these men possessed. When I was in command, during the latter part of the war in Cape Colony, squadrons of Yeomanry used to arrive in Cape Town and go up country. The Commander-in-Chief expected me to take an opportunity of looking at them, whenever I could, and report to him what they were like. I had more than once to send unfavourable reports of them, but some of these squadrons came back, after three or four months' training, so much altered that I hardly knew them; they were quite different. Three or four months' war had made the most extraordinary change. I can confirm what Colonel Kemp said with regard to the 1902 Yeomanry. A number of them came to Cape Colony, and I thought they were good; the men were keen, and the standard of intelligence was high. Perhaps the lecturers will remember that some years ago when I was in the habit of going about the country inspecting Yeomanry I laid down what my idea of a standard of efficiency should be. I think Yeomanry should endeavour in their training in peace time to render themselves so efficient, and to lay such a foundation, that they will be able, two or three months after the outbreak of war, to take their place besides Regular troops. I think that is the great aim and object they should have before them; and I have always thought so. As regards mounted troops, the great question is the provision of horses. There are no doubt many officers present who have read the excellent work by General von der Goltz called "The Nation in Arms." In that book he says that the number of the mounted forces of any nation is limited by its horse resources, and that they should maintain as many mounted troops as their horse supply will permit them to keep up. This, it seems to me, is a very sound idea. Therefore, I think it is most important, to an Empire like ours, that we should carefully organise our horse supply and resources throughout the whole Empire. I was very glad to hear Major Seely draw a distinction between Regulars and Irregulars. We know the discussion that is constantly going on in regard to cavalry *versus* mounted infantry, but the very apt distinction which he has drawn puts that discussion out of court altogether. Irregular mounted troops cannot undertake the *rôle* of cavalry. They may possibly develop into it afterwards, but they cannot for some time. As both the lecturers have so well pointed out, shooting and riding are the main essentials for Irregular mounted troops. The practice should be constant; it should not be occasional or erratic: every advantage should be taken of opportunities, such as are afforded by shooting clubs, miniature ranges, and all the expedients which have been mentioned by the lecturers. Every kind of mounted sport ought to be fostered and encouraged in these Irregular mounted corps; I am sure it tends to very much improve the riding. I agree with Major Seely's summary of the qualities which men of an Irregular mounted corps should possess. Of course, as he said, the essential quality

is courage and daring, and, secondly, confidence in their leaders. I made one or two notes when I found that he was going to talk on that subject, and I wrote down that they should be active and light, daring, possess good sight, and a good eye for country, and that they should be able to stand much exposure, and fatigue. I think that is very much what he said, and I absolutely agree with him. But I disagree with him when he said that horse management cannot be taught. I think it can be. Horse management is one of the most essential subjects to teach Irregular troops, or any mounted troops at all. There are many useful lessons which can be given to men in this subject in peace time, and I think it is a point that should not be lost sight of. I have no further remarks to make; but I think you will all cordially join with me in thanking Colonel Kemp and Major Seely most heartily for their very valuable, useful, and instructive lecture.

Colonel KEMP :—May I be allowed, on behalf of all here, to move a vote of thanks to General French for taking the Chair this afternoon. As I have already said, we feel it a very great honour that he should have come here, and not only have listened to our speeches but should have given us the benefit of what he himself thinks on the subject. I beg formally to propose a vote of thanks to General French.

Major SEELY :—I have much pleasure in seconding that; it is indeed a privilege to be presided over by the most distinguished cavalry leader of our day.

INFANTRY EQUIPMENT.

By Colonel J. T. BARRINGTON, p.s.c. (Late Royal Artillery and Army Ordnance Department).

IT is strange, but true, that of all subjects relating to the infantry soldier, the personal equipment, other than arms, carried by him receives ordinarily the least attention. Yet there is nothing that so intimately concerns his comfort and health, as the method adopted for the carriage of his inevitable burden. When, however, on the conclusion of the Crimean war, the military conscience of the nation awoke, it came to be impressed upon those who administered the affairs of the Army that the burden borne by the foot soldier was greater than should be imposed on ordinary humanity. Those were the days of the old knapsack. Such among us as can number years enough, may remember the stalwart soldiers, who then stood shoulder-to-shoulder on any heavy marching order parade, with ponderous knapsack poised high on the back, the mess-tin on top, and the flat-folded great-coat outside, increasing the distressing leverage on the shoulders, and causing, insidiously, unnoticed and without eliciting complaint, what came to be regarded as almost a natural incident in soldiering, known to the doctors as the "white spot" on the heart. At length the evil became too glaring, and an influential Committee, under the presidency of Major-General Eyre, was appointed in 1865 to report on the equipment of the infantry soldier.

There was laid before that Committee a paper by Deputy-Inspector-General W. C. Maclean, Professor of Military Medicine at the Army Medical School, Netley. This expert stated that the professors of the School, in reporting on packs, had insisted on the following principles, the observance of which was essential for the efficient equipping of the soldier:—

"1. To distribute the weight, as far as practicable, over the body.

2. To bring the weight, as far as possible, within the line of the centre of gravity.

3. To allow no pressure on the principal muscles, nerves, arteries, or veins.

4. To avoid most carefully all impediment to the fullest expansion of the lungs, and to the action of the heart."

Keeping these principles in view, the professors made a special and very favourable report on a valise equipment, proposed by General Sir T. Troubridge, which consisted of a yoke, on the principle of the milkmaid's yoke, fixed on the shoulders, from which two

tubular metal rods passed down in front of the arm-pits, but without touching them, and were hooked behind to a bag, or valise, of cylindrical form, carried on the small of the back. The weight was chiefly thrown on the shoulders, and partly on the hips. The ammunition was transferred from the large single leather pouch behind to two smaller pouches carried by the waistbelt in front. This method of carrying the ammunition continued until the Boer war proved it to be inadequate to meet the requirements of modern warfare. A modest allowance of 30 rounds in each pouch was, at the date of the Committee, considered sufficient, the weight being borne by a strap passing round the back of the neck, and hooking to the pouches. The great-coat was, in the Troubridge system, carried either on top of the valise, or in a roll over the shoulder.

Of this equipment, the professors in their report said:—"On considering the mode in which the weights are distributed on this plan, it is evident that it satisfies all the conditions which we formerly enumerated as essential to a perfect system."

The question of the soldier's equipment was again reported upon 2 years later by the same Committee. It was their desire to reduce the kit carried on the person as much as possible, and after reference to former wars, both old and recent, they were unanimously of opinion that the following would suffice, viz.: a flannel shirt, pair of socks, towel, pair of boots or shoes, hold-all with comb and razor, soap, 2 brushes, forage cap, and clasp knife (in the man's pocket).

They recorded their opinion that the best system for carrying the man's burden was the yoke principle of Sir T. Troubridge, by which the weight was brought fairly on to the shoulder blades, where it can best be borne, and directly over the centre of gravity. They accordingly recommended for adoption a yoke, making it of leather instead of metal, thus obviating risk of breaking. The ammunition was disposed in front in two pouches, holding 30 rounds each, carried on the waistbelt with a ball bag for 10 rounds, the weight being borne by the yoke, and thus thrown on the shoulders.

The Committee claimed for their valise equipment that its weight was distributed in three directions. By means of straps passing to the yoke-straps in front, and others to the yoke at the back of the neck, the chief weight was brought on to the yoke; secondly, the weight rested on the hips; and, thirdly, it was thrown by straps on the waistbelt in front.

With the reserve in the valise, the total amount of ammunition proposed to be carried during war was 100 rounds.

Opinion being divided on the respective merits of the leather yoke equipment, and an equipment using braces, a third report was made by this painstaking Committee.

At length the majority pronounced in favour of the brace equipment, and in 1868 reported:—"That the principle of the brace system provides the best means for carrying the infantry service kit with the greatest ease to the soldier." The system was, however, not without its defects, the chief of which was that the valise, as it hung low on the hips, caused heat and perspiration, producing tendency to chills and rheumatism. It was, moreover, as all systems using braces are, a counterbalance system, which is only comfortable when the weights in front and rear fairly balance each other. It was stated by a private of the Royal Marine Light Infantry, after wearing the equip-

ment, "that the 40 rounds of ammunition balance the valise and great-coat, and that it is easier marching with the ammunition, as without it the waistbelt is pulled up in front." The difficulties confronting the Committee, when they gave up the metal rods passing from the yoke at back of neck, under the arms to the valise on the hips, arose from the want of stiffening in the strapping. Hence the weight of the load behind caused the yoke to drag away from the neck, rendering it uncomfortable. The preference for the brace arrangement was natural, as this disadvantage was eliminated, but the evil of the counterbalance, which was as great as that due to the yoke straps of leather, supervened, and has remained to the present day.

The valise equipment introduced on the final report of General Eyre's Committee is now known as the "old, or 1869, pattern." By not a few soldiers this equipment has been preferred to the pattern that superseded it.

Colonel W. G. Cameron, 1st Battalion, 4th Regiment, reported however, 11th February, 1870, of this valise, that it "is not easily detached, as may be sometimes desirable at a moment's notice, should the men be required to make cover with their valises in the heat of action, or carry some important position with greater ease and rapidity than if encumbered with valise and kit." This assumes that the valise would, as a rule, be worn in action, which, in recent years, has never been the case.

Before many years had elapsed, the valise equipment introduced in 1869 was found to be unsatisfactory in certain particulars, and in 1879 trials were carried out with equipments designed by Lieut.-Colonel R. Barrett, and Surgeon-Major Oliver, A.M.D., in comparison with the Regulation Service equipment. As before, a strong Committee was appointed to report upon the relative merits of these systems. The president of this body was General Sir T. M. Steele, K.C.B., commanding the Aldershot Division, and the members were 3 major-generals (commanding brigades) and a surgeon-general. A memorandum of the specific points to be enquired into was furnished to the Committee for their guidance in framing their report.

In this memorandum it was directed that the following principles, among others, were to be kept in view:—

a. The accoutrements and valises should be free from all chance of medical objection on the score of pressure or constriction of the chest, or on the muscles or blood-vessels.

b. They should be light, simple, durable, and adapted in every way to the military exercises a soldier is called upon to perform, and the conditions under which he is placed in peace and war.

c. The load to be placed on an infantry soldier in "marching order" should only be such as the generality of men can carry without impairing their efficiency through over-fatigue, and this weight should be distributed as evenly as possible compatible with the foregoing principles.

As bearing on the principles detailed above, the Committee were requested to record, among other matters, particulars as to the

facility with which the valises could be detached without removing the rest of the accoutrements; the number of rounds of ammunition proposed to be carried; how distributed; and the degree of facility with which it could be withdrawn from the pouches. Also whether the valise would remain in position when the waistbelt was unclasped on the march; and whether the weight sustained rested on the top of the shoulder blades or elsewhere, and without cutting the soldier. The Committee were reminded that owing to the introduction of the helmet, soldiers cannot fire at long distances with their helmets on, and the coat in the high position behind the shoulders. Further, that as it was intended that each infantry soldier should thereafter carry an entrenching tool, the Committee should consider which of the equipments to be tried offered the greatest facilities for the attachment of a spade of the Roumanian pattern, then under trial, weighing 2 lbs. They were also to record their opinion on the relative merits of brown and buff leather for accoutrements, a proportion of the designs to be tried being made of each of these materials.

An important memorandum, drawn up by General Erskine, on the subject of "Service Marching Order," was also laid before the Committee. The salient points of this memorandum were:—1. That the load carried should not be so great as to cause over-fatigue. 2. That the great-coat, folded loosely, should be carried inside the valise. This was recommended chiefly in order to keep the coat dry. Cover for the great-coat has had its advocates at various times, but there is something apparently anomalous in carrying the coat rolled and protected against wet, instead of being worn by the man to protect him from the wet, but there is the advantage of having the coat dry on arrival in camp. 3. That the bulk of the kit should be carried in a kit bag on the back of the soldier for short distances only, being as a rule transported with the camp equipage from point to point.

The proposal to carry the great-coat inside the valise was actually tried in consequence of a very general complaint among the men examined by the Committee that an aching pain was left after a march by the coat carried on the shoulders in the high position.

To assist the Committee, a series of questions was submitted to officers who had taken part in the Zulu war of 1879, with reference to the carriage of the valise, etc. The replies are interesting and instructive. Opinions were diametrically opposed on the question whether it was necessary for a soldier to carry a valise, but almost all considered that the valise should be available, and, if not carried for the man, should be borne by himself. Lieut.-Colonel Parsons, 3rd Regiment, who held that the man should carry it, except under urgent circumstances, referred in support of his opinion to:—"The evils which arose from the separation of the men from their packs on landing in the Crimea, which lasted several weeks, although expected to last only a few days." As a matter of fact the valises were very rarely carried by the men during the Zulu war, except as a punishment by defaulters, or when curtailment of transport made it necessary.

The great-coat was carried either *en banderole* over the left shoulder, or slung folded flat or rolled, in the valise straps, the valise being carried in the wagons. At times, as during the advance to Ulundi, the men did not carry either great-coats or valises, but as a rule the coat was carried by the soldier. The method of carrying

en banderole was the cause of great heat to the wearer. The other mode was preferred.

As a general rule, 70 rounds of ammunition were carried. Very rarely the men had as many as 100. This ammunition weighed nearly twice as much as the ·303 cartridges of the Lee-Metford rifles now used. The reserve was carried in ammunition carts close to the battalions, or sometimes on pack mules. Generally 30 rounds extra were supplied to each man before going into action, and were carried in the haversack, or the trousers pockets.

The desirability of the carriage of the great-coat on the man's back, as part of his legitimate burden, is shown by the fact that in the Zulu war it was necessary, on account of the climate, to provide each man with two blankets and a waterproof sheet at night, and these had to be carried for the troops. There were no tents.

Much has been said in advocacy of the supply of small intrenching tools to troops, to be carried on the person, but attempts to add these articles to the man's *impedimenta* have not been very successful. In the war under notice, full-sized intrenching tools were carried for the troops in company carts or wagons, but no small tools formed part of the personal equipment. Intrenching tools are essential in these days for the effective defence of posts and positions, and for securing camps, but they must be tools large enough to do man's work, and not mere toys. This necessitates their transport in wheeled vehicles. The tools required are numerous, including spades, shovels, picks, axes, bill-hooks, and reaping hooks. At the time of the Zulu war, the army tools included light shovels and picks of a medium size. These were found useless in hard ground, and were soon exchanged for full-size tools. Still more useless have been the small toy-tools with which the soldier's person has been encumbered since. To these latter, the Boer war happily gave their *coup de grâce*. The attempt to introduce portable tools was a concession to the Germans, who had adopted the small Roumanian spade. The German soldier, however, is successfully weighted far beyond what has been deemed expedient with the British soldier.

A matter of the greatest importance is the nature of the material used for the soldier's belts. Buff leather has for many years held its own in the British Army. In the Armies of the Continent this material has not found favour. Either black or coloured leather has been employed. The British preference for buff has, no doubt, arisen from the smart appearance it gives the soldiers on parade, when pipe-clayed. During our recent wars, the buff belts have either been allowed to have a dirty appearance—pipe-clay on active service being out of the question—or the belts have been stained brown, with umber, coffee, or even mud. At the close of a campaign the used accoutrements are as a rule past wear, and are condemned. If well washed in hot water, with the free use of soap, the stained buff may be made to take pipe-clay again, and be made presentable, but as a matter of fact the close of a war is considered a legitimate time for re-equipping the troops who have taken part in it. The officers who had been through the Zulu war, above referred to, were asked by General Sir Thomas Steele's Committee whether they preferred brown or buff leather for accoutrements, and which material they considered best suited for general service. Of the replies to both questions, about twenty were in favour of brown, and about ten in favour of buff. Those favouring brown leather were influenced by a consideration of

what was best suited for active service; those declaring for buff were moved chiefly by considerations affecting home service, especially smartness on parade. The general verdict might be summed up briefly, as "brown for use, buff for show."

These opinions were given at a time when the troops wore scarlet, on which pipe-clayed belts look smarter than belts of brown leather. In deference to the importance of making the soldier in war as little conspicuous as possible, scarlet has given way to drab for the field service dress. This dress is, moreover, now worn at drills and manœuvres, and as training during peace is to be as like war service as possible, white belts are no longer admissible. Should drab give way to a grey colour, as more sightly, the argument will remain unaltered. Buff stained a brown colour might, no doubt, be employed, but it has disadvantages. It is of a soft and often spongy nature, inclined to stretch when wet; it is dull and lacking in smartness; it is more durable than brown leather, but is, in proportion, more expensive; and as its use has been limited to military equipments, its manufacture is also limited in extent; and when a sudden demand for buff has arisen, the price to be paid has seriously gone up. Brown leather, it is true, shows stains readily, and becomes discoloured. It is, therefore, desirable to adopt some shade of uniformly stained or dyed leather, as has been the practice for some years by the Navy for the belts of the bluejackets. At the same time, in deference to sentiment, and in the interest of recruiting, it would be advisable to furnish each soldier with a buff waistbelt during peace, to be worn pipe-clayed on gala parades, and when walking out.

During the comparative trials of the Barrett and Oliver equipments, under the direction of General Steele's Committee, further evidence was adduced of the soldier's preference for brown leather over buff for belts. In answer to the question, "Do you prefer brown leather or the buff for accoutrements?" the results in the 41st Regiment were, 12 for brown, 3 for buff; in the 75th Regiment they were, 15 for brown, being a unanimous vote; in the 96th Regiment, 8 were for brown, 1 for buff.

The Committee acted towards Surgeon-Major Oliver and Lieut.-Colonel Barrett with marked courtesy, allowing them the utmost latitude in making alterations, until finally their equipments differed to a considerable extent from their original form. As should be the case where officers give time and money to work out a serviceable equipment, these officers were not treated as ordinary inventors, but as assistants in devising the best equipment for the Service.

In their first report the Committee stated that, in their opinion, the then service valise equipment met the soldier's requirements fairly well, and its retention, with a few slight alterations, was recommended until some other decidedly superior equipment should be produced.

The question of "the load to be placed on an infantry soldier" the Committee considered the most difficult one to answer. This matter had already been considered in a "Memorandum on Equipment," by Captain J. T. Barrington, which was laid before the Committee, and in which the kit was divided into "indispensable" and "dispensable" articles, in other words, articles that should always be in possession, and articles from which the soldier might be separated for a limited time.

This method of arriving at a conclusion was adopted by the Committee, who recommended an equipment giving the following weights to be carried:—

	lbs.	ozs.
Clothing worn by the soldier	11	0½
Valise, with kit, equipment, arms, and 70 rounds of ammunition	40	15
	51	15½

To the above had to be added the weight of one or two days' rations, and of the Roumanian spade, raising the entire load to a possible 57¾ lbs.

Since then the authorised load of the British soldier has been reduced to about 53½ lbs., which, excepting that of Holland, is the lowest of the infantry soldier's burdens. The French Chasseur Alpin carries the enormous weight of over 70 lbs. The Danish infantry takes the next place with a load of 66 lbs. The French soldier of the Line carries nearly 61 lbs., the Austrian 63 lbs., and the German 61 lbs.

With regard to the distribution of the weight, the Committee, having ascertained during the trials that the men preferred having their shoulders quite free, recommended the carrying of the great-coat in the valise, instead of on the shoulders. At the present day, when the bandolier is superseding the pouch, it would not be practicable to carry the coat in the high position across the shoulders.

It is noteworthy that the Committee recommended the adoption of brown canvas for the valise, as being less conspicuous than black, and harmonising better with brown leather belts, which they also recommended in preference to buff.

The valise approved by the Committee was bulky and capacious, being intended by regulation to contain besides the great-coat, and a pair of boots, many articles for personal use, the total weight of the contents amounting to a fraction under 13 lbs. If to that be added 3½ lbs., the weight of the valise itself, the load pressing on the lower part of the man's back amounted to about 16½ lbs. The Committee considered that when the great-coat was carried in the valise, the boots should be left out to make room for the coat.

As there still exists a diversity of opinion on the comparative merits of brown and buff leather for accoutrements, it will be useful to record here the reasons that decided Sir Thomas Steele's Committee to recommend the former material.

Having made all possible enquiry from all ranks and various trades, they found that, compared with buff, brown leather (1) was more quickly cleaned; (2) was less conspicuous; (3) did not soil the men's clothing; (4) entailed less brushing of clothes, which therefore wore better; (5) in damp weather, the accoutrements did not stretch, as with buff, and a great deal of alteration was thereby saved after the belts were once fitted; (6) did not absorb moisture so quickly as buff; (7) was more serviceable for a campaign, where pipe-clay would be impossible, and undesirable if possible; (8) when wet, dried more quickly than buff; (9) having a smooth surface, was less liable to soil than buff; a soldier, therefore, would be able to devote more time to more important duties attendant on camp life than if he had buff accoutrements, which require so much time bestowed on them to make

them presentable; (10) bad leather is more easily detected in brown than in buff.

On the other hand, the only points in which brown leather appeared to have less advantage, were (1) its inferior durability to buff; (2) the greater difficulty of keeping all the accoutrements a uniform colour.

With reference to this last point, the Committee state that if saffron is used to clean the brown leather, it will wear a reasonably long time, and be well suited to a soldier's work.

Major-General Cameron, C.B., one of the members of the Committee, appended a rider to the report, in which he advocated a reduction in the field kit. He considered that owing to the mobility demanded in war, the valise would have to be left behind with the baggage, especially if the fruits of victory were to be secured by rapid pursuit. He appended a modified detail of the "indispensable" articles of a field kit. From this the valise and pair of boots were omitted, but the great-coat was included, and with it a light waterproof sheet in lieu of the cape. He was, moreover, in favour of a light bag for carrying the small articles of the reduced field kit instead of the heavier valise, which could then take the place of the kit bags in the transport wagons.

Among the objections to the former valise equipment, which it was proposed by the Committee to supersede, was the supply of braces in no less than four sizes, viz., large, medium, medium-small, and small. The necessity of issuing parts in sizes is not only a weak point in an equipment, but is a source of very great inconvenience to the Ordnance Department. Its straps were too numerous, and great pains were necessary to obtain a comfortable fit. The coat was carried high on the shoulder, and being unsupported at the bottom, it tended to sagg outwards, with a leverage that caused pain across the shoulders, and its weight being borne by the waistbelt in front, the latter was dragged upwards against the ribs when the pouches were empty. The valise, moreover, was carried too low, its bottom being on a level with the bottom edge of the tunic. This position is distressing during a march, and is much disliked by the troops. It is not adopted by any Continental Army.

In their second report the Committee stated the results of their further trials, and submitted a valise equipment which, it was their opinion, would best meet all the requirements of the infantry soldier. The position of the valise was raised, as in the previous equipment it was carried too low, and consequently had a tendency to drag the man backwards. The great-coat was removed from the shoulders, there being no longer room for it there with the valise raised, and was carried inside the valise.

When carried, the valise rested on the sacrum, being supported behind by the brace straps which crossed the shoulders. A portion of the weight was taken by supporting straps from the front of the braces passing to the centre and bottom of the valise under the arms, and the ammunition in the front pouches helped to counterbalance the weight of the valise.

But in this arrangement a fallacy is inherent, because in times of peace the ammunition is not carried in the pouches, and on active service, when ammunition is carried there, the valise, as a rule, ceases to be carried. All peace equipments, therefore, that depend on the

counterbalance principle are deceptive for the above reason, and this point should be explained in reports on equipment under trial.

The Committee considered it of great importance to be able to remove the valise without taking off all the accoutrements. Means were therefore provided for removal of the valise, leaving the waistbelt on the soldier. This principle cannot be carried out if the rolled great-coat is attached to the waistbelt, and carried in that position. One objection raised by the Committee to the Oliver equipment was, that as the waistbelt was always passed through the loop of the valise, it was impossible to remove the latter without removing the waistbelt.

As the Committee placed the great-coat and also the haversack inside the valise, they recommended that the soldier should no longer be called upon to carry a spare pair of boots, a spare pair of trousers, or a spare shirt. Since the date of this Committee the boots and trousers have been removed from the marching order kit, and the flannel shirt alone remains.

Among the conditions of a good pouch, the Committee advocated such a design as would preclude the possibility of the cartridges falling out, even when the soldier throws himself down upon the ground to fire. They accordingly designed and proposed a pouch supposed to meet this condition.

This pouch has, however, signally falsified the hopes that were built upon it, as the chief objection constantly urged against it has been the liability to loss of cartridges, especially when men were doubling with the flaps of the pouches unbuttoned.

A pouch was to be carried on each side of the locket of the waistbelt, supported by the braces, and capable of holding 50 cartridges each. The dead weight of ammunition in each pouch would thus be rather over 5 lbs.,[1] and this was utilised to counterbalance part of the weight of the packed valise. When the valise was not carried the pouches were supported by the braces, buckled under the arms.

The Committee recommended the retention of the union-locket fastening for the waistbelt, in preference to either the snake fastening of the Oliver equipment, or the plain buckle of the Barrett, as they found that it gave greater firmness to the belt than the other fastenings.

In the "Instructions" prepared some time afterwards for guidance in fitting the equipment, it was laid down that when the valise was not carried in war, any articles of kit taken must be carried in the pockets of the great-coat. The following articles were detailed as those usually needed in war, viz., pocket-ledger, towel, piece of soap, pair of socks, night cap, surgical bandages (with needle and thread stuck in it), and reserve ration. A flannel shirt, it is stated, could be carried as well.

No mention is made of a pair of light shoes, for use in camp, which are considered indispensable articles of war equipment in all Continental Armies. These could be included in the above detail instead of the shirt.

The great-coat, with the various articles named carried in its pockets, was to be strapped to the waistbelt, the mess-tin being strapped on top of the coat, an arrangement faulty in the extreme, for the reasons already mentioned, and followed by no country but our own.

[1] 100 rounds of 0·45 ammunition (Martini-Henry) weighed 10 lbs. 3 ozs.

The valise equipment of 1880, introduced on the recommendation of Sir Thomas Steele's influential Committee, held the field for the brief space of 2 years only, when a fresh Committee, under the presidency of Colonel Harrison, R.E., was assembled to consider an equipment differing somewhat from the above design, which was approved. This equipment had the waistbelt fitted behind with two brass loops to take the ends of the braces, when the valise was not worn. This was known as the 1882 pattern. Two years later Colonel Harrison's Committee recommended the adoption of a valise equipment proposed by Major Mayne, R.E., and known as the "Modified Valise Equipment, 1884." The principal feature in this design was the mode of suspending the valise. This was effected by a hook engaging in a ring placed in the centre of the man's back, the object being to enable the valise to be readily removed and replaced without disturbing the rest of the equipment, and by the wearer himself without assistance. The reports of commanding officers who tried this equipment did not, however, support the claim that the valise could be replaced on the back by the soldier without assistance. This equipment never came into use, and the 1882 pattern held its own for a few years longer.

There existed, however, manifest defects in the design of this pattern which it was, no doubt, desirable to remove. The packed valise, containing both great-coat and cape, as well as kit, formed a heavy and very bulky load across the centre of the back, producing considerable heat. At the same time, the weight tended to sagg backwards, causing a drag at the shoulders, and, unless carefully fitted, the shoulder straps, to which were attached the steadying straps passing under the arms, were liable to cut the arms, and especially so when the locket of the waistbelt was unclasped. Further, the valise could not be taken off without removing the shoulder straps on which the pouches depended for support.

It was doubtless with a view to remedy these defects that Lieut.-Colonel Slade and Lieut.-Colonel Wallace proposed their equipment, which, when finally approved, became known as Pattern 1888.

Contrary to precedent, it does not appear that any special Committee was appointed to try, and report on the suitability of, the Slade-Wallace equipment before its adoption by the War Office. The Standing Committee, known as the Dress and Equipment Committee at Aldershot, was referred to, and reported—it is believed—that the proposed equipment was suitable for the Service. After various trials, presumably under the immediate direction of the War Office, and after one decisive test, it was adopted. The test in question was a march from Portsmouth to London *viâ* Aldershot, by two officers wearing the equipment in heavy marching order, and carrying the pouches weighted with ammunition, as on service in the field. This long-distance march was successfully accomplished, the report of the officers on the ease of carriage of the kit being highly favourable.

The ease of carriage referred to depended on the stability of the load, obtained by the counterbalance between the weights of valise and great-coat behind the man, and the weighted pouches at his waistbelt in front. In peace-time, however, this counterbalance is non-existent, since the men are not in possession of the ammunition, which cannot therefore be carried in the pouches. Therein lay the weakness of this equipment, and the fallacy of the heavy marching

order test, which was at least an important factor leading to the adoption of the design.

The "Instructions for Fitting" this equipment contain the following paragraph:—"The great-coat and mess-tin ride without shifting, whether ammunition is carried in the pouches or not, but as this equipment is essentially a service one, it will be found that when ammunition is carried, the weight is more evenly distributed, and the equipment is better balanced."

Again:—"The equipment rides very well on the march with the belt unhooked, or merely buckled to the tongue."

With respect to the instructions above quoted, it is necessary to point out that the valise, mess-tin, and rolled coat on the back can only be kept from shifting when the pouches have no ammunition to weight them, by keeping the waistbelt abnormally tight. Still more necessary is weight in the pouches if the equipment is to ride well on the march with the belt unhooked, or with the locket secured by the leather tongue. Without this weight to make a counterbalance the rolled coat drops down on the man's buttocks and, together with the mess-tin on top of it, saggs away from the body most uncomfortably. The valise, moreover, if carried, creeps by degrees lower and lower down the back from its normal position behind the shoulders, and drags up the waistbelt with its empty pouches.

It was no doubt to guard against such a derangement of the equipment that the first page of the instructions contains this injunction:—"Fit the waistbelt on, care being taken that it is fairly tight." It is fair to infer that if the waistbelt is to be worn fairly tight, the stability of the load at times depends on this, and, in other words, the load to some extent rides upon the waistbelt. But that is a serious defect in any design.

It is not surprising that the defects of this equipment produced before long a crop of complaints. Of these the chief were as follows:—(1) That it was not so convenient to carry with the peace equipment, that is, without ammunition, as the 1882 pattern; (2) that it was difficult to fit; (3) that it could not be taken off or put on without assistance; (4) that the position of the great-coat on the loins was objectionable, inducing excessive perspiration, and chill of kidneys on removal; in that respect it was considered that the great-coat was worse than the valise carried in the same position, as it was in the 1882 pattern; (5) that when a great weight of ammunition is not carried, the weight behind draws up the waistbelt, causing pressure on the stomach; (6) that when the men doubled the valise flapped about on the shoulders; (7) that in marching order it was almost impossible to fire when lying down, the helmet being tipped over the eyes by the top of the valise; (8) that the manipulation of the braces and straps in front was too complicated; (9) that the method of attaching the great-coat to the waistbelt caused considerable strain in front, and was exhausting when going up hill; (10) that the mess-tin and great-coat were not easily detached; (11) that the equipment, being of buff, was clumsy, thick, and heavy; (12) that what was wanted was an equipment with valise and great-coat supported by straps independent of the rest of the equipment.

In consequence of the adverse reports that were being constantly received at Head Quarters, it was decided to try other designs in

competition with the 1888 pattern. From 1896 down to the outbreak of the Boer war in October, 1899, several trials were carried out, with various designs. In 1896, the Service 1888 pattern, converted to the principle of the Lintott Patent Frame Equipment, was pitted against the Service equipment pure and simple. The object of this trial was to test the efficacy and suitability for general service of the "Lintott" steel shoulder hooks for sustaining the load, and of the "Lintott" pouch for securing the cartridges against loss, and for facilitating their withdrawal when firing. The hooked steel shoulder-pieces were covered with buff leather attached by rivets. They had buckles for carrying the valise high on the shoulder. In some sets the shoulder-hooks were fitted with brass loops to carry the rolled coat high on the shoulder, the valise being then carried at the centre of the back. The pouch was furnished with an opening on top, in addition to the ordinary opening in front. The cartridges were inserted in front, and withdrawn through the top. The result was unsatisfactory for the "Lintott" equipment, as the steel hooked shoulder-pieces, being rigid, were found to press uncomfortably on the shoulders. The same idea was proposed in 1866 by the writer, but it was not then tried. The pouch presented no sufficient improvement over the Service 1894 pattern, designed by the writer, with cover opening outwards, as in the German service, to warrant a change. The equipment was, however, taken up by a few Volunteer corps.

In the same year the "Barrett" and "Oliver" equipments, with some modifications, came forward once more for comparative trial with the Service 1888 pattern. The valise used with the "Barrett" was the design of 1882, but made of the Service black leather instead of canvas. It carried the coat inside it as before. It is sufficient to say that there appeared to be nothing in either of these equipments to warrant the supersession of the 1888 pattern. In bulkiness, moreover, they were opposed to the growing desire to lighten the soldier's equipment, and relieve him of part of his burden. It was decided that the sets of the Oliver equipment should be fitted with buff-leather strapping, instead of brown as on the former occasions, a measure to which the designer was strongly opposed, as the material was decidedly less suitable from its soft nature for a design having many small straps. Buff was, however, at that time still holding its own at the War Office.

In 1897 a comparative trial took place between the Service 1888 pattern equipment, a "knapsack" equipment, and a "yoke" equipment. The knapsack, with its shoulder-straps, was practically that in use in the German Army. The "yoke" equipment was specially designed to carry the rolled coat and mess-tin on a light angular frame, with the Service pattern valise, modified, carried below the waist, suspended by side-straps passing under the arms. The results showed that, as a means of carrying the kit, the knapsack was decidedly preferred to the valise, and it would have stood a fair chance of adoption had there been convenient means of carrying the coat and mess-tin without the knapsack. On the other hand, the good point in the "yoke" equipment was the convenient arrangement provided for this purpose. Its chief defect was the lowness of the position given to the valise, which rested on the buttocks, and was found uncomfortable in marching.

The writer of this article, who was the designer of the "yoke" equipment, then devised a method of carrying the knapsack upon the angular frame, but making it detachable therefrom, and thus preserving the means of carrying the rolled coat and mess-tin upon the frame without knapsack, in field service order. This equipment was tried in 1898, and preferred to either the Service 1888 pattern, or the German knapsack model, but it was thought that the knapsack, with great-coat in a long roll encircling its top and sides, made the pack needlessly broad. It was therefore suggested that the knapsack used with the frame might be made smaller. A further trial was accordingly ordered in 1899 to be carried out with smaller knapsack, the leading object of the War Office at the time being to provide the soldier with a convenient and comfortable mode of carrying his rolled coat and mess-tin in field order.

The strapping of the equipment was all of buff leather. The frame was stiffened with two narrow bands of spring-tempered steel taking the form of an A. This frame lay flat against the back of the knapsack. The frame, as at first designed, for use with a valise carried below it on the buttocks, was stiffened with pieces of ordinary cane.

The trial of this equipment with smaller knapsack was not destined to take place. The Boer war broke out in October, 1899, and the trials were postponed. At the termination of the long struggle, other heads had the guidance of affairs at the War Office, and fresh ideas prevailed. Instead of contemplating the re-introduction of the knapsack, some thirty years after its supersession by the first of the valise series, it was determined to abolish the valise itself, a measure that had been recommended to the War Office by the writer two years before the war. The chief grounds for the abolition of the valise were that it was rarely carried by the men in the wars of Britain, and that any kit required in the field could equally well, and at less cost, be carried in a kit-bag.

It has also been decided to abolish the Service pouches with which the troops took the field in 1899, as it was soon found that men lying prone on the stomach, perhaps for hours together, were greatly inconvenienced by the pressure of the hard and bulky filled pouches on which they practically lay. Pouches will, therefore, be replaced by bandoliers and waistbelts; both of which will probably be furnished with a series of pockets containing say 10 rounds each, and when the clip-loading system comes into use the cartridges will, it is supposed, be carried in the pockets in the clips, or, as they are to be called, "chargers," containing five cartridges each. The small portable entrenching tools, having proved themselves inefficient in the field, have ceased to form part of the personal equipment of the soldier.

One radical defect, however, will still remain to be remedied, namely, the faulty method of carrying the great-coat. This was the evil that brought about the experiments above referred to that took place before the Boer war. Nevertheless, the War Office has not preserved the continuity of this important question, by carrying out the trials to a finish, and the evil still remains. It is, indeed, even more pressing than formerly, because the great-coat is now more bulky and heavier than it was. In time of peace the rolled coat will continue to cause discomfort to the soldier, resting on his buttocks, without getting any relief by counterbalance from the ammunition that in

war would weight the waistbelt in front. In war, despite the existence of a counterbalance while the ammunition remains unexpended, the discomfort and heat due to the rolled coat pressing on the back below the waistbelt will be so great that the coats must be taken from the troops and carried in their wagons— a practice leading not unfrequently to the men and their coats being separated during an entire night, or longer, besides tending to augment the transport carriages of an army, an evil of the first magnitude.

In Continental Armies it is still held to be of the utmost importance that the soldier should not be separated in the field from either his knapsack or his great-coat. In the British Army the knapsack and the valise have disappeared, but nominally at least, the great-coat yet remains as part of the soldier's personal burden. It is essential, therefore, so to arrange the carriage of this important article of kit on the back that it may not be found in the field better to run the risk of separating the soldier indefinitely from his coat, rather than to compel him to endure the discomfort of carrying it himself.

A remarkable work was published last year[1] by Commandant Lavisse, of the French Army, entitled "Sac au Dos," which merits perusal by all who interest themselves in the equipment of the infantry soldier. It is noticeable therein that the rigid bulky pouch continues still in use in the German and most other foreign Armies, but they have as yet had but little experience in the prone-position fighting found necessary in the Boer war. Commandant Lavisse contends that the soldier should never be separated from his knapsack; that it should always be, if not on his back, at least within reach, and ready to be put on at the first alarm in camp, because the knapsack contains what is indispensable for the preservation of his health, and even of his life. Whether on the march, except during halts for rest, or in action, the soldier, this writer asserts, should not separate himself from his knapsack. He would so persistently fix this idea in his head that it could never be effaced. He would lighten the knapsack, and make the burden as easy as possible, but it should never be admitted that there were moments when it might be permissible to put it aside, its weight being unbearable, because, "a knapsack abandoned is a knapsack lost, and a soldier without knapsack is a soldier lost." At the same time, he states that circumstances might arise where the demand for a special effort on the part of the troops might render a temporary disengagement from the knapsack unavoidable. This is a matter the deciding of which must depend on the special circumstances of each occasion. Continental Armies being so large, the additional transport required to carry the knapsacks, and the inconvenience attending its increase, will render any such practice practically impossible. In the British Army this is more easy of accomplishment, from the comparatively small size of the forces usually put into the field, and the present tendency to augment the number of mounted fighting men, and to lessen the number of foot soldiers.

It will be observed from the foregoing pages that since the year 1865, when the great Committee of Major-General Eyre was appointed, up to the present time, the question of the infantry soldier's

[1] Librairie Hachette et Cie., Paris, 1902.

equipment has never been allowed to rest. This unfortunate fact is due partly to the gradual improvement in arms, and the consequent changes in the approved systems of fighting; partly to absence of correct principles of design on the introduction of new equipment; and partly to the constant changes in the War Office *personnel*, and the want of any attempt at continuity through disregard of the records of what has taken place in the past. The question therefore remains still unsolved, and is still pressing, and not the less so, if the rumour be correct that the soldier is abnormally subject still to affections of the heart, disqualifying him prematurely for further service.

HIS HOLINESS THE POPE'S MILITARY HOUSEHOLD.

By Lieut.-General F. H. TYRRELL (late Indian Army).

THE sword as well as the keys of St. Peter devolved upon his successors in the See of Rome: and the Heads of the Church Militant here on earth found themselves often obliged to resort to carnal weapons and to methods of warfare other than spiritual to vindicate their rights or to uphold their authority. Pope Julius II. engineered the League of Cambray, which shattered the laborious fabric of Venetian power; and the commanding genius of Pope Pius V. steered the fleets of Christendom to victory at Lepanto. Their successors took a full share in all the wars which continually devastated Italy; but from the limited area of their temporal dominions, and from the unwarlike character of their subjects, they were never able to attain to any considerable degree of military power; and the Papal armies were mere auxiliaries to the mighty hosts of France, Spain, and Austria, which for three centuries and more made the fair fields of Italy the battle-ground of their conflicting interests and ambitions. The Pope's standing Army never earned any great reputation for itself, and in 1798 it was defeated and dissolved by the conquering French Republican invaders, who followed the banners of Buonaparte. During the first half of the nineteenth century the defence and pacification of the States of the Church was undertaken alternately by the Armies of France and Austria; but when the rising tide of the Italian national movement threatened the temporal sovereignty of the Head of the Church, Pope Pio Nono raised an army of 20,000 men, of whom about half were foreign mercenaries and volunteers, from all the Catholic countries of Europe and America, commanded by the French general Lamoricière, who had made his reputation in Algerian warfare. But this army was destroyed by Cialdini's Piedmontese on the fatal field of Castelfidardo, on the 17th September, 1860; and ten years later the Italian troops entered the city of Rome, dispersed the few remaining battalions and squadrons of Papal troops, and confined the authority of the Pope to the precincts of the Vatican. Since that day, now over thirty years ago, the military establishment of His Holiness has been limited to four corps, with an aggregate strength of 500 officers and soldiers, charged with the escort of his person, the guard of his palace, and the maintenance of order at the great feasts and ceremonies in St. Peter's. The organisation, equipment, and history of the household troops of His Holiness are described below: the historical details are taken from the pamphlet by M. Henri de Schaller, entitled "Histoire

de la Garde Suisse Pontificale," published at Fribourg in 1897; and from French military periodicals; and from the report of the proceedings at the late celebration of the centenary of the establishment of the Noble Guard, published at the Vatican Press.

The four corps of His Holiness' Military Household take precedence as follows:—

1. The Noble Guard.
2. The Swiss Guard.
3. The Palatine Guard.
4. The Pontifical Gendarmerie.

The first of these is a bodyguard exclusively composed of noblemen and gentlemen; the second and fourth are companies of professional soldiers, regularly enlisted and trained, and living in quarters under military discipline; the third is a volunteer or militia corps of civilian soldiers, only occasionally called out for parade or duty.

All these corps depend for administrative purposes upon the Papal Secretary of State, who, under the late Pope, Leo XIII., was Cardinal Rampolla, while the detail of their duties is arranged and communicated to them by the Major Domo, who occupies the position and performs the functions of the Lord Chamberlain at a Royal Court. The immediate guard of the person and private apartments of His Holiness devolves on the Noble Guard; the Swiss Guards keep the antechambers and the gates of the Vatican; the Pontifical Gendarmi or Carabinieri do the duty of police within the precincts, and in the museums and picture galleries; and the Palatine Guards line the *route* and swell the pomp of the Papal processions when His Holiness descends into St. Peter's on the great festivals of the Church. All these corps are composed of men picked for their fine appearance and good physique, which is set off by their handsome uniforms; and indeed there are no troops to be seen in Europe better dressed, better drilled, and better turned out in all respects than these soldiers of the Church, who form to-day the little garrison of the Vatican. The following details of the history, formation, and equipment of the different corps, may interest some of the readers of the JOURNAL.

THE NOBLE GUARD.

The Pope's Guardia Nobile is one of the few survivals of those companies of gentlemen-troopers who were in the sixteenth and seventeenth centuries the ornament and the defence of all the Royal Courts of Europe. The Corps dates back its first origin to the year 1485, in the Pontificate of Innocent VIII., whose father, the Cardinal Aran Cibo, is credited with the institution of the first Papal Corps of Guards. Forty years before, the Dauphin, afterwards Charles the Seventh of France, had formed the companies of the Scots Garde-du-corps, and the Scots Gendarmerie from the knights and men-at-arms, whom Archibald "Tineman," Earl of Douglas, had led to the assistance of the French against Henry V.; and Cardinal Ximenes was busy organising the formidable Spanish Standing Army, with which he governed Castile. These examples are supposed to have animated the

Cardinal Cibo with the idea of forming a permanent corps of Household troops for the service of his son, the reigning Pope, and of his successors on the throne of St. Peter's. The company of noble young gallants which he formed to be a permanent escort and personal guard for the Sovereign Pontiff, received the title of Garde des Chevaux-Légers, and the badge of a peacock, spreading its plumes, with the motto "Leauté passe tout," which was the family device of its founder. The corps was formed in two companies, and the captains were often nephews or relatives of the Pope, or otherwise were scions of the noblest families of Rome. The quarters were near the Vatican by the City gate, which still preserves the memory of the corps in the name of Porta dei Cavaleggieri. The corps distinguished itself on many fields of battle; it was annihilated after a desperate defence in the sack of Rome by the army of the Constable Bourbon, and was afterwards reconstituted. The famous Andrea Doria served his apprenticeship to arms in the ranks of the Cavaleggieri. To this corps was also confided the Vexillum or banner of the Holy Roman Church, which was first consigned by the Supreme Pontiff to the chief leader of a Crusade. The Vessillifero, or bearer of this banner, had the rank and insignia of a captain, and on occasions of parade or ceremony rode with his sacred charge between the two captains of the corps. This charge has now descended to the Noble Guard.

In 1555 the Senate of Rome raised a corps of one hundred gentlemen-at-arms from among the nobles of the city, and presented it to Pope Paul IV., who consecrated the Company as "Cavaliers of the Faith"; but it was more generally known as the "Lancie Spezzate," which may be freely translated in English by "Free Lances." In squads of ten they took turns in guarding the private apartments of the Pope, and in escorting him when he went abroad. The Company was not afterwards kept up to full strength, and at the time of its dissolution in 1798, it had dwindled to twenty-four of all ranks.

In that unlucky year the Papal Army was disbanded by the French Republicans, and the corps of Cavaleggieri, and of Lancie Spezzate were entirely suppressed. When Pope Pius VII. was replaced on the throne of Rome by the First Consul in 1801, he formed the survivors of these two corps, along with novices from the noble families of Rome, into a new corps, to which he gave the title of Guardia Nobile del Corpo, and which has remained to this day.

It was at first divided into two companies, but these were afterwards fused into one. The officers are, a lieutenant-general and two brigadier-generals; the sub-officers are, 8 exempts, with the rank and title of colonels, and 8 cadets with the rank and title of lieutenant-colonels; the rank and file comprise 10 captains, 20 lieutenants, and 20 sub-lieutenants. The formation is said to be imitated from that of the Royal Bodyguard of the Kings of Spain. The promotion is made by seniority, through all the grades up to that of brigadier-general; but the office of lieutenant-general or captain of the Company, is filled by selection, and the selection rests with the Pope. Noble birth is an indispensable qualification for enlistment in the corps, and its ranks are filled by the scions of the oldest and noblest families of the Roman aristocracy, the Orsini, the Chigi, the Buoncompagni, the Ludovisi, the Colacicchi, the Gaetani, the Frangipani, and many others. The present Captain of the Guard is Lieutenant-General Prince Don Camillo Rospigliosi. A candidate for the corps must be between the ages of

21 and 25, must be of good physique and of fine presence, and must possess a certain property qualification. The pay is merely nominal, and *pro formâ*. Ten guardsmen including an exempt and a cadet mount guard daily in the ante-chamber of the Pope's apartments in the Vatican; and when His Holiness drives in the Palace gardens he is escorted by mounted Noble Guards, the exempt riding by the side of the carriage. When the Pope is carried in the Sedia Gestatoria into St. Peter's or the Sistine Chapel, the Noble Guards surround his chair, marching with drawn swords, preceded and followed by a rank of Swiss halberdiers. The handsome persons and brilliant uniforms of these high-born troopers add considerably to the splendours of the splendid Papal Court. The Noble Guards are also employed as aides to the Nuncios, and as Papal messengers, to bear the Hat to a newly appointed Cardinal, or to carry important despatches.

The Noble Guard has not been fortunate in seeing war service, but it has on several occasions signalised itself by fidelity to its sovereign. In 1808 the Emperor Napoleon's troops occupied the States of the Church, and their general incorporated the Papal army with his own. The Pope, indignant at this arbitrary action, and considering that his colours had been desecrated by subordination to the tricolor, changed them from red and yellow to white and yellow. The Noble Guard adopted a cockade of the new colours, and refused to discard it at the command of the French general, who thereupon made the whole Guard prisoners, and committed them to the Castle of St. Angelo, from which they were not released till after their master had been carried away prisoner to France. After his restoration in 1814, Pope Pius VII. replaced the Noble Guard on its former footing. In May, 1820, he presented them with a new standard, consecrating it with great ceremony in the Pauline Chapel in the Vatican, and he also confided to the charge of the Company the Vexillum, or Banner of the Church. After Pope Pius IX. had secretly fled from Rome in 1848, many of the Noble Guards followed him to Gaëta. The centenary of the establishment of the corps was celebrated at the Vatican on the 11th May, 1901, when Pope Leo. XIII. distributed commemorative medals to the Guardsmen.

The standard, consecrated by Pope Pius VII., is still carried by the Noble Guard. It is of white silk, fringed with gold, and bears the Papal arms, and the armorial bearings of the reigning Pope emblazoned on it in gold and colours. Two streamers fly from the gilt spearhead, with the title of the corps embroidered on them.

The Vessillo di Santa Romana Chiesa is of red silk, studded with golden stars, and with the Papal arms, the mitre and cross-keys, in gold embroidery. The Vessillifero, or standard bearer, whose office has become hereditary in the noble Roman family of Patrizi, wears the uniform of a captain of the Noble Guard, and carries the standard on occasions of its display, between two officers of the Company.

The headdress of the Noble Guard is a silver helmet, with gilt mountings and comb, with a black sealskin band or turban, on the front of which is a silver eight-pointed star, with red enamel centre, bearing the cypher of the corps in gold. The high curving comb is crested with a tail of black horsehair hanging down to the waist of the wearer; and an upright hackle feather, white above and black below, is worn on the left side of the helmet. The full dress (Plate 1) was, until recently, a

coatee with brandebourgs of broad gold lace, but this has lately been changed to a tunic, and the new dress uniform was worn for the first time at the late jubilee celebrations in St. Peter's. It is a scarlet single-breasted tunic with blue facings and gold lace and buttons, and gold bullion epaulettes. White leather breeches and jack-boots, with gilt spurs are worn, and white gauntlet gloves. The belts are of gold lace, and the officers wear gold sashes. The shoulder-belt, or bandoliera, is of gold lace and blue silk, of a peculiar pattern, said to be copied from that of the Royal Bodyguard of Spain. The arms are, a carbine and cavalry sabre in steel scabbard. In undress the helmet is worn without crest or plume. The undress tunic is of dark blue cloth, double breasted, with light blue collars and cuffs, trimmed with red piping, and gilt buttons. Epaulettes and belts as in full dress. The overalls are light blue, with a double black braid stripe, with Wellington boots and gilt spurs.

The trumpeters, of whom there are 4 in the Company, have a white horsehair crest on their helmets, and a red and white side-plume. Their tunics are sky blue, with red facings, and their shoulder-belts are red and gold. They have gilt trumpets, with red banners, fringed and embroidered with gold.

The blue undress uniform is worn on all guards and ordinary duties; the full dress is reserved for state occasions.

Besides the 4 trumpeters, there are attached to the Guard a maestro d'armi (fencing master), a furiere (troop sergeant-major), a scudiere (equerry), and a magazziniere (storekeeper), for the service of the Company.

The Swiss Guard.

In the year 1505 A.D., Pope Julius II. engaged a company of Swiss soldiers to serve as his personal guard. After their victories over the mailed chivalry of Austria and Burgundy, the Swiss had justly earned the reputation of being the best infantry in Europe, and their services were eagerly sought as mercenaries by the Lords of Legions, who were already beginning to replace their untrustworthy levies of feudal vassals by bands of trained soldiers. The militant heads of the Church had already employed Swiss bands against their Italian enemies during the latter half of the fifteenth century, and the Company of Guards raised by Pope Julius was formed of no mere holiday soldiers; it was intended rather as the nucleus of a standing army. It was frequently engaged in the field both against foreign and domestic enemies in those troublous times, and its first captain, Gaspard von Silinen of Lucerne, was killed in battle against the Spaniards at Rimini. The company had three officers, a captain, who had the title of colonel, a lieutenant, who was also grand judge or provost, and an ensign. The uniform of the company was designed by Michael Angelo, and consisted of a doublet and wide knee-breeches of the colours red, yellow, and green, arranged in perpendicular stripes or bands. The arrangement of the colours differed for each side of the dress. The headdress was a black velvet toque, with white plumes for the officers, panaches of red, green, and yellow plumes for the men. In the field, steel morions and corselets, with gorgets, pauldrons, and brassarts, etc., were worn. This old armour is now preserved in the armoury of the company in the Vatican, and some of the pieces still bear the marks of

the shrewd blows they received on many a hard-fought field. The offensive arms were, a halberd or pole-axe, a favourite weapon of the Swiss soldiers, and a huge two-handled sword.

Twenty years after it had been raised the Company of Swiss Guards was almost annihilated in the sack of Rome by the Black Bands of the Constable Bourbon. Forty of the Swiss, who had escorted Pope Clement in his flight to the Castle of St. Angelo, alone survived; all the other officers and men of the company perished at their post, like the Spartans at Thermopylæ; but they sold their lives dearly. The company remained in abeyance after this disaster, but it was re-established by Pope Paul III. in 1548. In that year he concluded a contract or "capitulation" with the four cantons of Lucerne, Schwytz, Uri, and Unterwalden, for the supply of a guard of 225 officers and men, for continuous service. The officers were a captain, with rank of colonel; a lieutenant, ranking as lieutenant-colonel; and a sub-lieutenant and an ensign, ranking as captains. There were 4 sergeants (rottmeister), ranking as lieutenants; 2 trumpeters, and 4 drummers. The company was governed by the Swiss military code, and it was stipulated that it should enjoy the same rights and privileges as the company of the *Cent Suisses* in the service of the King of France. The dress designed by Michael Angelo was retained, but for the colour green there was substituted light blue for the men of Lucerne, and white for those of the Forest Cantons. The officers were armed with partisans, the men with halberds. In the field cuirasses were worn, and a steel morion with a red plume.

The company continued to be employed in war; and some of its men served in the bodyguard of Prosper Colonna, who commanded the Papal galleys at Lepanto, and, as a proof of their valour, they brought away two Turkish pennons, which they carried to their native city, and they may be seen at this day in the Historical Museum at Lucerne.

Afterwards three other companies of Swiss Guards were raised under similar conditions, but they were mostly employed as guards to the Papal governors in the provincial towns. The Popes were anxious to procure further levies of Swiss troops, but the Confederation always declined to sanction the raising of Swiss regiments for the Papal service, though they furnished them to the kings of Naples and Sardinia, as well as to France, Spain, and Holland. They alleged, as the reason for their refusal, their reluctance to expose their troops to the ill-fortune which was the constant attendant of the Papal arms, but no doubt the real reason is to be found in the predominance of the Protestant cantons of Berne and Zurich in the councils of the Confederation.

The Popes, however, retained their four companies of Swiss Guards, by agreement with the Catholic cantons, during the seventeenth and eighteenth centuries.

The first or original company was reduced in numbers, and at the end of the eighteenth century its establishment was a captain, a lieutenant, a sub-lieutenant, and an ensign, each with a superior grade of army rank; a chaplain and a surgeon-major; a sergeant-major, ranking as lieutenant; 6 sergeants, 6 corporals, 4 drummers, 1 fifer, 8 musicians, and 100 halberdiers.

After the conclusion of the war of the Austrian succession by the Peace of Aix-la-Chapelle, Italy enjoyed an unwonted repose from the alarms of war for half a century; but she was rudely awakened from her peaceful dreams by the shock of the French Revolution. In 1798 General Berthier, at the head of the Republican Army, took possession of Rome, and disarmed and disbanded the Swiss Guard. The aged Pope, Pius the Sixth, died a captive, and his successor, Pius the Seventh, concluded a concordat with the First Consul, and resumed the power and state of the supreme Pontiff. In 1801 he re-constituted the company of Swiss Guards with a lieutenant, 5 sub-officers, and 36 privates, who had remained in Rome; and others rejoining, raised the strength to 3 officers and 60 men. But in 1808 the usurpations of Napoleon were answered by the Pope with a Bull of excommunication, and, in consequence, the French troops again occupied Rome, made the Pope a prisoner, and again disarmed and disbanded his guards. In 1814, upon the fall of the Empire, the Pope returned to Rome, and his first act was to reconstitute the company of the Swiss Guard, of which he fixed the strength at 100 men. Pope Leo XII. being troubled by secret societies and revolutionary bands in his dominions, resolved to augment the strength, and in 1824 he concluded a fresh capitulation with the canton of Lucerne, for the supply of 200 men to form the company. The government of the canton preserved the right which it had always enjoyed, of nominating the captain of the company. Out of the twenty captains who had successively held the command, no less than nine belonged to the famous family of the Pfyffers of Lucerne, and at this time there had been six successive captains of the family, which had signalised itself in the wars of the League in France in the sixteenth century, and in the defence of the Tuileries on the fatal 10th of August, 1792. The captaincy continued to be held by Lucernois after the abrogation of the capitulations until 1878, when the Pope appointed Louis de Courten, of the equally famous fighting Valaisan family, which had furnished twenty-four general officers to the different Armies of Europe, and enjoyed the hereditary colonelcy of the Swiss regiment in the service of France, which bore their name. In 1848 the Swiss Guards defended the Palace of the Quirinal against the revolutionary mob, until the Pope ordered them to lay down their arms to stay the effusion of blood. The Pope fled from Rome by stealth, and the Swiss Guard was disbanded by the new Republican Government, but under the terms of the capitulations, which provided for three months' notice or three months' pay. When the Pope, Pius IX., was brought back in triumph by the French troops, he immediately re-established the Company, but he had to make his own arrangements with the officers and men, as the system of capitulations had been condemned by the Swiss Government. The Swiss Guards are now recruited in the Catholic cantons of Switzerland, chiefly by the parish priests. Though foreign enlistments are forbidden by the Federal Law, this infraction of it is winked at by the authorities, and the men have generally performed their obligatory recruits' service in the Federal Militia before they enlist in the Papal ranks. The service is much sought after, and there is no lack of recruits. The men came formerly exclusively from Lucerne and the Forest cantons, but now almost half the company is composed of Valaisans, probably owing to the late captain having been from the Valais. The men are enlisted for 20 years, at the expiration of which time they are entitled to a pension at the rate of two-thirds of their pay, but they can re-

engage to serve on for full-pay pension. The pay of a private is 80 liras or francs per mensem, and that of the other ranks proportionally higher. The men are not allowed to marry while in the service, and married men are not enlisted. Formerly celibacy was not enforced, and many soldiers married Italian women, and their sons were enlisted in the Guard, so that there were to be found Swiss Guards who could speak no language but Italian. The Swiss soldiers have a high reputation in Rome for honesty and fidelity, and many of them, when they quit the service, obtain situations of trust in Italian firms and families.

All ranks live in quarters in the Vatican. There is a library and recreation room provided for the men, and a canteen, where they can purchase provisions at cost price. They receive two meals a day, breakfast of coffee and milk and bread; and dinner of soup, meat, and vegetables. They have to provide their own supper from the canteen, and stoppages for messing and half mounting, etc., are deducted from their monthly pay.

The establishment of the Company was revised by His Holiness Pope Leo XIII. in 1879, and now stands as follows:—

1 Captain	ranking as	Colonel.
1 Lieutenant	,,	Lieut.-Colonel.
1 Sub-lieutenant	,,	Major.
1 Chaplain	,,	Major.
1 Quarter-Master and Secretary 1 Judge .. .. .. 1 Exempt	,,	Captain.
1 Sergeant-Major	,,	Lieutenant.
4 Sergeants	,,	Sub-lieutenant.
7 Corporals 2 Portiers	,,	Sergeant-Major.
100 Halberdiers 2 Drummers	,,	Sergeant.

Making a total of 123 of all ranks.

There are also a surgeon and a physician, who have the medical charge of the company.

The present captain is Colonel the Baron Meyer von Schauensee, of the famous fighting family from Lucerne, of that name, and there is another Meyer, and also a Pfyffer among the officers of the company. The chaplain of the company is Monsignor Correggiani d'Orelli, who was, before his appointment to the Guard, employed in London in the German Catholic Mission in Whitechapel.

The judge, or richter, of whom there was always one in a Swiss regiment *à l'étranger*, combines the function of a judge-advocate and a provost-marshal. The portiers, or keepers of the gate, formerly kept the doors of the Papal mint, but now merely share the duties of the other under-officers.

In these days of ceaseless and needless changes in military uniform, it is quite restful to contemplate a corps which, like our own company of Yeomen of the Guard, has preserved the pattern of its dress unaltered for four centuries. The brilliant costume designed by the master-limner, Michael Angelo, still clothes the Swiss sentinel at the Gate of Bronze; and a French writer, M. Boyer d'Agen, who has

described the military establishments of the Vatican, likens him to a gorgeous tropical bird, imprisoned behind the bars of its cage. The threshold of the portal which he guards forms an impassable barrier between the mediæval mercenary soldier, in his splendid and picturesque harlequin dress, and the Italian conscript carabinier on duty in the Piazza below.

On state occasions the officers and soldiers of the Swiss Guard wear morions of gilt metal, with falling red horsehair plumes, and steel armour of gorget, breastplate, backplate, and pauldrons. Under their armour the officers wear a crimson velvet doublet, and knickerbockers, and crimson stockings.

The sergeants wear a dark blue doublet of antique pattern, laced with broad silver lace on all the seams, crimson knickerbockers and stockings (Plate 2).

The rank and file wear doublet and knickerbockers of scarlet, yellow, and dark blue (the latter so dark as to look like black); the colours are arranged differently on each side of the dress; cloth gaiters, striped black and yellow, and ankle boots (Plate 3). All ranks wear a small starched Medici ruff round the neck. In *alta tenuta*, or full dress, on other than great state occasions, armour is not worn, and the head-dress is then a helmet of the shape worn by the British infantry, but of polished black leather, with gilt mountings, and the cypher of the company in gilt metal on the front plate, and a white falling horsehair plume, like that worn by the Prussian Guards. In *mezza tenuta*, or half dress, a gilt spike is worn instead of the plume, and a white linen false collar replaces the starched ruff.

When armour is not worn the officers wear a dark blue coatee, with red facings and gold lace, dark blue trowsers with red stripe, and the plumed or spiked leathern helmet, in which dress they might easily pass for a Prussian officer, were it not that they wear the old-fashioned coatee instead of the modern tunic. When in armour the officers carry partisans, with their broad blades damascened with gold, and basket-hilted rapiers; otherwise they are armed only with swords. The soldiers carry a halbert, with an ornamental steel axe-head, and a straight sword, with a brass cross-hilt, in a brass-mounted black leather scabbard, on a frog in a buff leather waist-belt. The two portiers carry long pikes like the halberts formerly carried by our infantry sergeants, and six of the men, who march nearest to the chair of His Holiness in the processions, carry huge two-handed swords.

In *bassa tenuta*, or undress, the men wear, instead of a helmet, a dark blue forage cap, with a red band, of the German pattern, while the sergeants wear a blue kepi, like that worn in the Austrian Army. The men mount guard in this dress, and they are then armed with Remington rifles, and sword bayonets, in steel scabbards. Their modern armament contrasts strangely with their mediæval dress, and this contrast is more strongly marked in the company's armoury in their quarters in the Vatican, where the suits of armour, partisans, and halberts are ranged in the racks, beside modern sabres, rifles, and cartouche boxes.

"All the warlike gear of old,
Mixed with what we now behold."

The great-coat, which is seldom required to cover the splendours of their dress in the Roman climate, is of light blue cloth, with a red "paroli," or patch, on the collar, trimmed with yellow cord.

The colour of the Swiss Guard has its field covered with red and white rays, or flames converging to the centre, with the Papal arms emblazoned on it. These rays or flames were common to the colours of all the old Swiss regiments *à l'étranger*, the colours varying according to the regiment, or according to the canton to which it belonged. Formerly the armorial bearings of the captain of the company, were quartered with those of the Pope; but this practice has been discontinued since the nomination of the captain has been transferred from the authorities of the canton of Lucerne to those of the Vatican.

The words of command are given to the company in German The Swiss Guards drill with a steadiness and precision worthy of the Household Troops at Potsdam or Whitehall. One of the manœuvres which they perform by word of command is kneeling in ranks to salute the passage of the Host, or of His Holiness; a movement which was once familiar to the drill-books of all the Catholic armies of Europe. In the Swiss regiments in the service of France the Protestant soldiers were exempted from this performance; and when the Host was borne past the parade ground of a battalion, the companies from the Protestant cantons stood erect under arms, while the Catholic soldiers knelt on one knee in their ranks.

These parti-coloured halberdiers at the Vatican are now the sole remaining representatives of the fifty thousand Swiss Grenadiers and Fusiliers who, throughout the eighteenth century, mounted the guard at the Tuileries and at the Escorial, at the court of the Bourbon king at Naples, and of the stadtholder at the Hague; who carried their colours with the white Swiss cross through many a flaming battle-field of Flanders and Lombardy, and who dyed with their heroic blood the rocks of the Dalmatian coast and the sandy shores of Mauritania.

The Palatine Guard.

The Palatine Guard is a Papal Volunteer Corps, and the conditions of service in it are much the same as in the Volunteer corps in Great Britain; only its object is not national defence, but simply the maintenance of order among the crowds in St. Peter's on the occasion of Church festivals, and the enhancement of the pomp and parade of the Papal Court. There were formerly two citizen corps maintained in the City of Rome, under the titles of Urban Militia and Civic Guard; but in 1850 Cardinal Antonelli incorporated the two in one corps, which he re-christened the Palatine or Palace Guard.

Under the Papal régime the men of this corps enjoyed many privileges, such as carrying arms, and shooting game without a licence, free passage over the State railways, etc.; but since the occupation of Rome as the Italian capital, these benefits are no longer enjoyed. The Palatine Guard is called upon for duty at the Vatican, or at St. Peter's, about twelve times in the course of the year; each man receives as pay 80 liras or francs per annum, and the officers a larger sum; the field and staff officers draw monthly allowances. The rate of pension is the same, and it is granted after thirty years' service. The men are recruited from the *bourgeoisie* of Rome, shopkeepers and artisans. The corps used to form a battalion, but is now reduced to 170 of all ranks, and there are always plenty of candidates to fill every vacancy, for the service is very popular with the Romans,

and the authorities can pick their recruits. The men have mostly been trained to arms in the National Army.

The staff of the corps consists of a colonel, a lieutenant-colonel, a major, an adjutant-major, and an assistant adjutant. Each company has a captain and two lieutenants as officers, a *furiere* (sergeant), 5 corporals, and 30 privates. There are also 8 drummers for the corps.

The colour is half white and half yellow, with the mitre and cross-keys, and the armorial bearings of the reigning Pope emblazoned on it, and a gilt metal figure of the Archangel Gabriel surmounting the staff, and two streamers with the title of the corps embroidered on them.

All ranks provide their own uniform. The dress much resembles that of the late Voltigeurs of the Garde Impériale of the Emperor Napoleon the Third, or that of the present Garde Républicaine at Paris. It consists of a shako, trimmed with gold lace or yellow braid, with a gilt front plate, bearing the Papal arms, and a scarlet hackle feather; a dark blue single-breasted coatee, with scarlet collar and cuffs, trimmed with yellow braid, yellow fringed epaulettes, and red cord aiguillettes. The trowsers are sky-blue, with broad red stripe. The outfit of a private costs him about 200 liras. The uniforms are kept with the arms at the corps' armoury in the Vatican, and the men put them on there when they go on duty or parade The arms are a Remington rifle, and sword bayonet in steel scabbard, and the accoutrements are black leather with brass mountings.

Most of the men are decorated, as the colonel receives every year at the Feast of St. Peter a number of silver medals from the Pope for distribution to the officers and men.

The colonel of the corps is Conte Camillo Pecci, a nephew of Pope Leo XIII., who has just succeeded the late veteran, Colonel Commendatore Crostarosa.

The Pontifical Gendarmes.

The title of Gendarmerie, which is now used as the designation of military police in all the countries of the civilised world, originally simply meant heavy cavalry; and the corps of Pontifical Gendarmes, in its dress and equipment, and in the splendid physique of its troopers, reminds one of that famous regiment of Grenadiers à Cheval of La Vieille Garde, which was the finest of all the fine cavalry corps of Napoleon's invincible army. If their coatees had only white lapels, and red epaulettes instead of white ones, their dress would be an exact copy of that of the splendid Horse Grenadiers whom Marshal Bessières so often led to victory.

The Papal Gendarmerie dates its existence from 1816, in which year Pope Pius VII., restored to the sovereignty of the States of the Church by the fall of his enemy, Napoleon, formed the corps to replace the military police, which had kept the peace of the country under the French usurpation.

After the events of 1860 the functions of the Pontifical Gendarmes were limited to the City of Rome, and since 1870 the corps has been reduced to a single company or squadron, confined to the precincts of the Vatican.

The company has 4 officers, a major or captain as commandant, and 3 lieutenants; 12 non-commissioned officers, viz., 2 marescialli (sergeants), 4 brigadiers (corporal-majors), and 6 corporals, and 80 gendarmes. There are no trumpeters nor musicians.

The men are recruited for 5 years' service, and can renew their engagement till they have served for a pension. The pay of a private gendarme is 80 liras (£3 4s.) a month, and the pension is 60 liras per mensem after 25 years' service. The men are well and comfortably lodged in quarters in the Vatican, like the Swiss Guards; a detachment of ten occupies a small barrack in the Palace gardens.

The Gendarmes are men of fine physique and tall stature, 6 feet and over in height. They perform the duties of keeping order among the pilgrims who visit the Vatican, and the crowds at the high festivals of the Church in St. Peter's. Many of them have already served in the Carabinieri Reale, or Italian constabulary, another fine body of men, the pick of the whole Italian Army.

Though the Pontifical Gendarmes have no longer horses, since they are confined to the limits of the Vatican, they still retain their equipment as a mounted corps.

Their full dress is a tall bearskin cap, with white cords and tassels encircling it, and a scarlet hackle feather on the left side; a dark blue single-breasted coatee, with silver buttons, and silver lace trimming on the collars and cuffs, white turnbacks on the skirts, with grenade ornaments; white fringed epaulettes, and aiguillettes; white leather breeches and jack boots with steel spurs, complete the dress (Plate 4). The accoutrements are, white leather cross belts, with brass breast-plate, with the cypher of the corps; one belt carries the pouch, the other has slings like the shoulder-belt formerly worn by our infantry adjutants, and carries a cavalry sabre in steel scabbard. White gauntlet gloves are worn in full dress, and the sword knot is of white leather. In undress a cocked hat is worn across, like that of Napoleon, with silver loop and button, and yellow and white cockade; epaulettes and aiguillettes as in full dress, but the pouch belt is laid aside, and only the sword belt is worn. The overalls are light blue, with double black mohair braid stripe; Wellington boots and steel spurs. In *mezza tenuta* (half dress) an upright scarlet hackle feather is worn in the cocked hat; in *bassa tenuta* (undress) a scarlet tuft; when off duty a blue kepi, with silver band, is worn. The horse furniture is dark blue, trimmed with white braid, but the Gendarmes have no occasion for it now. They wear a long dark blue horseman's cloak, with silver buttons and scarlet lining and collar. The arms are a Remington carbine and cavalry sabre.

The squadron has a standard of the Papal colours, half yellow and half white, with the cypher of the corps embroidered on it.

The commandant of the corps is Major the Cavaliere Tagliaferri.

There is also a corps of Pompieri, or Firemen, for the service of the Vatican, who, like all Continental fire brigades, have a military equipment. Their dress is, a brass helmet with comb, a double-breasted dark blue coatee, with red facings and brass buttons, epaulettes with brass scales and red fringe; dark blue trousers, with red stripe; and black leather belts.

The Corps of Papal Dragoons no longer exists, but its showy uniform is still to be seen sometimes at the Papal Court. The helmet was

No. 1.—An Officer of the Guardia Nobile in the Old State Uniform.

No. 2.—A Sergeant of the Swiss Guards in State Uniform.

No. 3.—A Private of the Swiss Guards in State Uniform.

No. 4.—A Private of the Pontifical Gendarmes in Full Dress.

similar to that of the Noble Guard, but had a scarlet side-plume; the coat was dark green, with red facings, and plastron like that worn by our Lancers, and silver epaulettes; the overalls were sky-blue, with broad red stripe; and the accoutrements were of white leather.

The Knights Hospitallers of St. John of Jerusalem, the last remnant of the Christian chivalry of the Crusading ages, have taken up their final abode at the Court of the spiritual sovereign, whose behests they so long and so faithfully obeyed. A century ago they ranked with emperors and kings as the Sovereign Order of Malta, where their palaces now serve as barracks for British soldiers.

There is something pathetic in the spectacle of this little garrison of the Vatican, with its old-world forms and old-fashioned dress, standing immovably to its arms, in the midst of a strange and hostile world, round the throne of the Ruler, at whose nod all the swords in Christendom would once have leapt from their scabbards.

THE COMPARATIVE MORTALITY OF THE FRENCH AND GERMAN ARMIES BETWEEN 1888-89 AND 1899-1900.

By Doctor A. VILLARET.

Translated by permission from "La Semaine Médicale" by Staff-Surgeon O. W. ANDREWS, M.B., R.N.

THE anxiety aroused in France a few months ago by a question which a Senator put to the Minister for War, and the explanations, somewhat contradictory, furnished by the latter, has not been entirely justified, as the fact had been already established in this very journal (*La Semaine Médicale*). Nevertheless, it was from that time clearly demonstrated that from a sanitary point of view the French Army was in an unfavourable position, notably as compared with that which exists in the Army of the neighbouring great military Power—Germany—and this impression has been confirmed in the debates which have quite recently taken place before the Senate on the occasion of the discussion of the question as to the sanitary condition of the Army. Upon the whole, the conclusion to which one can legitimately come is that the mortality of the French Army, if it is not three or four times greater than that of the German Army, as has been asserted without proof in the sitting of the Senate, has at least been, according to precise calculations dealing with the period from 1874 to 1901, about two and a half times higher than that of the German Army (vide *Semaine Médicale*, 1902, p. 399).

One cannot, however, regard the question as absolutely settled. If the preceding conclusion is exact in its entirety, we ought certainly to seek out the causes for this defect in the French Army. But to do that it behoves one, above all, to only compare data strictly comparable, a condition to which those who have dealt with the subject have not always conformed. To avoid this reproach, we have in the present work, which refers to the period of 12 years which extends from the financial year 1888-89 to the financial year 1899-1900, put in tabular form, the number of deaths in the French Home Army

(*l'Armée française métropolitaine) after deducting officers* (because the German statistics do not include officers), and the number of deaths in the German Army, excluding the Bavarian army corps, which are the subject of special statistics. We have, in addition, compared the effective forces *(Iststärke)* of the two Armies.

In taking these necessary restrictions into account, we see that for the period under consideration there were in the French Army 29,053 deaths, or a mean of 2,421 per annum. The mean strength was 411,484 men, *mean rate of mortality* 5·9 per thousand.

In the German Army the total number of deaths amounted to 15,311, or 1,276 mean per annum; brought into a mean strength of 474,992 men *this number gives a mean death rate of 2·7 per thousand.* So, therefore, from 1888-89 to 1899-1900, the mortality of the French Army, officers excluded, was a *little more than double* the mortality of the German Army *(Table 1)*[1]; more precisely, the former was to the latter as 2·18 : 1.

The curves which form *Fig. 2* show the annual variations of the death rate in the two Armies. We thus see that the maximum number of deaths in the French Army for the period under consideration reached 7·6 per thousand in 1890-91; as regards the German Army it corresponds to the year 1889-90, when it was 3·3 per thousand, but whereas in the German Army the curve has from this point commenced to descend pretty regularly, on the contrary, in the French Army in 1894-96 it has risen well above the mean (to 6·8 per thousand). Finally, in the two Armies, the financial year 1899-1900 marks a notable increase, which for the French Army had really begun in the preceding period.

Table 3 shows these same annual variations in a manner, if anything, more striking. Year for year, the mortality of the French Army is practically double that of the German Army.

II.

It is necessary now to grapple with the problem more closely. With this intent, let us consider the most common illnesses which are considered as causes of loss for the two Armies. It is generally on account of the excessive number of deaths from tuberculosis and typhoid fever that one attributes the inferiority, from a sanitary point of view, of the French as compared with the German Army.

Assuredly, these are, without doubt, two very important factors, but we must not think that these alone are responsible in this respect, and we shall easily demonstrate as we proceed that the number of other diseases, too often left out of consideration, help to create the unfortunate situation which has so taken possession of public opinion in France.

Take for example influenza. A cursory glance at *Table 4* suffices to prove that the proportion of deaths from influenza in the French Army has been, in round numbers, during the 12 years that we are considering, from three times (1891-92) *to nearly forty times* (1894-95) greater than in the German Army. This fact is probably due to the greater frequency of pulmonary

[1] For Tables see pp. 921-924.

complications, which in itself is in keeping with the great number of deaths from pulmonary tuberculosis.

In regard to typhoid fever *(Table 5)*,[1] one sees that the mortality, comparatively constant in the German Army, where it oscillates between 0·31 per thousand to 0·16 per thousand, with a tendency quite distinct to decrease pretty regularly, is much more considerable in the French Army, where its maximum has been from 1·88 per thousand in 1891-92 to its minimum of 0·96 per thousand in 1899-1900.

Turning to measles and scarlet fever *(Table 7)*, the former of these eruptive fevers the mortality has been, 6 years out of 12, zero in the German Army, whilst in the French Army it has varied between 0·05 and 0·31 per thousand. As regards the latter disease the mortality, very low (0·01 to 0·04 per thousand) in Germany, is much higher in France (0·16 to 0·38 per thousand).

Respecting diphtheria *(Table 8)*, one can make the same observations, at least for the first years of the period under consideration. From 1894-95, the epoch of the discovery of serum-therapy, the proportion of deaths falls in both Armies. However, it still remains appreciably lower in the German Army.

Next we come to the group of tuberculous affections. Pulmonary tuberculosis *(Table 9)* caused the death in France of nearly 1 per thousand of the effective strength in 1890-91, and the lowest proportion—that of 1899-1900—still reaches to 0·52 per thousand. On the other hand, for the German Army the death rate has never exceeded 0·48 per cent., or, in other words, a much lower number than has been recorded in France, and has fallen to 0·16 per thousand in 1898-99.

In regard to tuberculosis of other organs than the lungs *(Table 10)*, the difference is still more noticeable. The proportion of deaths has varied in the French Army between 0·32 per thousand and 0·56 per thousand, whilst in the German Army it has only reached 0·15 per thousand in the most unfavourable year. But here is a fact sufficiently curious to note:—In the French Army, the mortality for tuberculous affections of this group is nearly constant; setting aside the first two years under consideration, where one notes a sufficiently low number, perhaps on account of the insufficient means of diagnosis prior to 1890, the death rate is comprised between 0·37 and 0·56 per thousand. In Germany, on the contrary, it follows an almost regular increase, which has gone from 0·06 per thousand in 1891-92 to 0·15 per thousand in 1899-1900.

To conclude, the total number of localised tuberculosis, pulmonary or otherwise, bears witness in an extremely clear manner to the superiority of the sanitary condition of the German Army *(Table 11)*. Whilst in France the total mortality due to tuberculosis has only twice (in 1897-98 and in 1898-99) been below 1 per thousand (and even then very slightly so); in Germany it has only twice (viz., in the first 2 of the 12 years under consideration) been above 0·5 per thousand.

Soldiers in Germany likewise succumb much less to dysentery *(Table 12)* than they do in France. The actual number of deaths from 1888-89 to 1899-1900 has fluctuated for the German Army between

[1] For Tables see pp. 921-924.

0 to 11 (0·02 per thousand), whereas in the French Army it has never fallen below 17 (0·05 per thousand), and in 1891-92 it even rose as high as 68 (0·17 per thousand).

One would expect that in France, a country whose climate, if taken all round, is more genial than that of Germany, pneumonia would be responsible for a smaller number of deaths. It is, however, quite the reverse, as *Table 13*[1] shows, and the mortality of the French from pneumonia is altogether much higher than that of the German Army.

After what we have seen in regard to tuberculosis, one will not be surprised that the figures relating to pleurisy *(Table 14)* should in like manner be less favourable to France. One must, however, observe that in 1889-90 the mortality from pleurisy was appreciably higher in the German than in the French Army (0·45 per thousand as against 0·33 per thousand).

Meningitis *(Table 15)*, on the other hand, has occasioned, in an almost constant manner, more deaths in Germany than in France, which is doubtless owing to the endemic nature of cerebro-spinal meningitis in certain districts of the former country.

The French Army has also suffered the lesser of the two from peritonitis, if one judges by *Table 16*; the differences are, however, very slight.

Finally, as regards deaths by suicide and deaths by accident, these are incontestably more numerous in the German Army. Taking suicides in particular *(Table 17)*, the highest number for France (0·31 per thousand in 1891-92) is still lower than the smallest number for Germany (0·33 per thousand in 1898-99). The lowest proportion in the former country was 0·19 per thousand in 1899-1900; the highest in the latter 0·64 per thousand in 1889-90. As regards the accidents *(Table 18)*, the difference in favour of France is less considerable, though real; yet in 1894-95 and 1896-97 the death rate under this heading was a little higher in the French than it was in the German Army.

III.

After having thus separately studied the mortality from the commonest causes of death, year by year so to speak, it is necessary to take a general view of the sanitary condition of the two Armies between 1888-89 and 1899-1900, in comparing the mean proportion of deaths for each of these causes for the total number of years under consideration, as one sees in *Table 19*.

It shows in a striking manner that if the total mortality of the French Army had been taken as a mean for the period which we have considered, this would be a little more than twice as high as that of the German Army *(vide Tables 1, 2, and 3)*. The mortality from influenza was eleven times higher (0·33 against 0·03 per thousand), from typhoid fever six and a half times (1·34 per thousand against 0·21 per thousand), from scarlet fever eight times (0·25 against 0·03 per thousand), from measles thirteen times (0·13 against 0·01 per thousand), from diphtheria three times (0·09 against 0·03

[1] For Tables see pp. 921-924.

per thousand), from dysentery ten times (0·10 against 0·01 per thousand), from pulmonary tuberculosis more than twice (0·69 against 0·31 per thousand), from tuberculosis of other organs five times (0·44 against 0·09 per thousand), from tuberculosis diseases as a whole, nearly three times (1·13 against 0·40 per thousand), from pneumonia twice (0·69 against 0·35 per thousand), from pleurisy one and a half times (0·18 against 0·11 per thousand), greater in the French than in the German Army.

On the other hand, the death rate from meningitis was a third higher in Germany (0·14 against 0·11 per thousand), and it is the same with deaths from peritonitis (0·08 against 0·06 per thousand); that of suicides, it was in the same country nearly double (0·47 against 0·27 per thousand); that of deaths by accident it is one quarter higher (0·34 against 0·27 per thousand).

IV.

What conclusions are we to draw from this study of statisties, and how are we to explain the general inferiority of the French as regards the German Army from the sanitary point of view?

In this respect, it may not perhaps be useless to point out what are the precautions taken in Germany against typhoid fever and tuberculosis, which are, after all, the two chief factors of military mortality.

As regards typhoid fever; in Germany, they attach most importance to maintaining a pure supply of water; every barrack well has its board, on which the medical officer writes four times a year the results of the analysis of the water. As soon as there is any suspicion in regard to a water supply, a sample of it is analysed in the chemical laboratory of the army corps, which is placed under the orders of the director of the sanitary department of the army corps (*Corps-General Arzt*), who can, if he considers it necessary, send a bacteriologist to carry out a searching examination on the spot. The result of these measures is that typhoid fever has become very rare in the German Army, and that those cases which one does see are for the most part due to infection contracted during the manœuvres.

As an example, here are some figures borrowed from the last published report, concerning the cases of enteric fever which occurred during the year 1899-1900:—

In the XIIIth Army Corps (Wurtemberg), out of 21,581 mean strength, there were 4 cases of typhoid fever. In the XIth Army Corps, amongst 19,594 men, there occurred 6 cases. In the IIIrd Army Corps, with 23,132 men, there were 9 cases. In the IXth Army Corps, with 24,689 men, there were also 9 cases. In the XVIIIth Army Corps, with 25,905 men, there were 10 cases.

This same year, 1899-1900, one only observed one epidemic of enteric fever in the VIIIth Army Corps, and this epidemic arose in a camp of exercise.

One must add that the German Sanitary Corps has a perfectly free hand as regards its administrative duties, which facilitates to

an enormous extent the carrying out of hygienic measures. These last not only concern the quality of drinking water, but also include a constant supervision and regular disinfection of the drains of barracks.

In regard to tuberculosis, if the mortality from this diminishes more and more in the German Army, this is due to several causes. At first, a searching examination of conscripts is made before the Council of Revision (Conseil de Revision). For some years past not more than 150 men per diem have been allowed to be examined by the medical officer attached to this council.

In addition, the recruit undergoes a most searching examination on joining the Army; and if the parents of the young soldier, or one of them, died from a suspicious disease, a fact which is verified by the local authorities, the recruit is submitted to prolonged observation, until they can pass judgment with certainty on his physical fitness. One must also bear in mind that the German medical officer lends himself to this temporary "casting" much more readily than does his French confrère.

In Germany they enrol (in the Army proper) a certain number of men who have completed 2 years' healthy service on a supplementary list, so that by this means it is possible to build up the constitutions of weakly individuals without interfering with the effective strength.

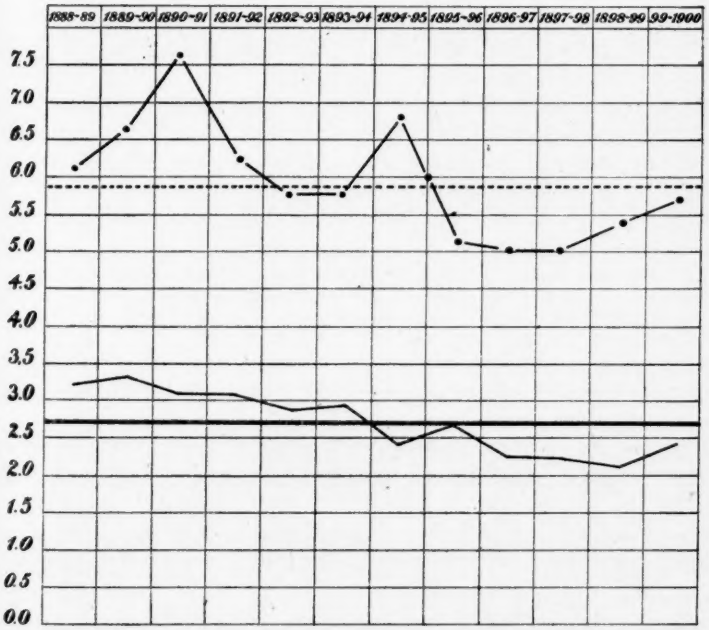
Lastly, it would be unreasonable not to allude to the three great social laws (insurance against sickness, the law against accidents in employment, and insurance against invaliding), the application of which, it is true, costs the German Empire more than one million marks per diem (£50,000), but whose beneficial effects have begun to make themselves felt on the civil population, and indirectly on the military portion. It is to these combined measures that the German Army owes its superiority from a hygienic point of view. When we consider that Germany has had compulsory military service since 1814, whereas in France it has only been instituted for 30 years, it is not to be wondered at that the sanitary organisation of the French is less perfect than that of the German Army.

In every case the figures which we have collected in this work make it clear that there does not exist any intrinsic cause inherent, so to speak, in the constitution itself of the French Army which may be inclined to increase the mortality. Therefore, there is no doubt but that the application of hygienic and proper precautionary measures will, in time, bring down the death rate of the soldiers in France to the satisfactory level at which it stands in Germany.

TABLE 1.—*Mean Mortality of the French and German Armies in the Period 1888-89 to 1899-1900.*

	French Army.	German Army.
Strength...	411,484	474,992
Mortality	2,421	1,276
Percentage	**5·8**	**2·7**

FIG. 2.—*Total Mortality.*



The numbers on which the above curves depend are the same as those on which Table 3 is based.

-·-·- line = Mortality in French Army.
Dotted = Mean „ „
Thin „ = Mortality in German Army.
Thick straight line = Mean Mortality in German Army.

TABLE 3.—*Total Mortality.*

	1888-89.		1889-90.		1890-91.		1891-92.		1892-93.	
	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.
Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,144
Mortality	2,317	1,339	2,590	1,391	2,958	1,353	2,457	1,359	2,279	1,312
Percentage	6·1	3·2	6·6	3·3	7·6	3·1	6·3	3·1	5·8	2·9

TABLE 4.—*Mortality from Influenza.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,144
Mortality	17	—	121	26	123	5	43	19	94	5
Percentage	0·04	0·00	0·31	0·06	0·32	0·01	0·11	0·04	0·24	0·01

TABLE 5.—*Mortality from Typhoid Fever.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,144
Mortality	697	129	602	93	575	113	736	123	552	110
Percentage	1·82	0·31	1·52	0·22	1·48	0·26	1·88	0·28	1·35	0·25

TABLE 6.—*Mortality from Measles.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,144
Mortality	37	1	54	1	129	—	21	2	51	—
Percentage	0·09	0·01	0·14	0·01	0·31	0·00	0·05	0·01	0·13	0·00

TABLE 7.—*Mortality from Scarlet Fever.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,144
Mortality	82	11	66	10	118	19	65	6	68	16
Percentage	0·21	0·03	0·17	0·02	0·30	00·4	0·16	0·01	0·17	00·4

TABLE 8.—*Mortality from Diphtheria.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,144
Mortality	43	14	45	14	72	14	52	15	60	22
Percentage	0·11	0·03	0·11	0·03	0·18	0·03	0·13	0·03	0·15	0·05

TABLE 9.—*Mortality from Pulmonary Tuberculosis.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,144
Mortality	354	201	353	189	376	182	301	27	243	156
Percentage	0·93	0·48	0·89	0·45	0·97	0·42	0·77	0·06	0·62	0·36

TABLE 10.—*Mortality from Tuberculosis of Organs other than the Lungs.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,144
Mortality	122	41	126	40	218	32	168	27	162	29
Percentage	0·32	0·09	0·32	0·10	0·56	0·07	0·43	0·06	0·41	0·07

TABLE 11.—*Total Mortality from Tuberculosis.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	391,150	439,144
Mortality	476	242	479	230	594	214	469	208	405	185
Percentage	1·25	0·57	1·21	0·55	1·53	0·49	1·20	0·48	1·03	0·43

TABLE 12.—*Mortality from Dysentery.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	391,150	439,144
Mortality	64	—	30	3	17	7	68	1	42	1
Percentage	0·17	0·00	0·08	0·01	0·05	0·02	0·17	0·01	0·11	0·01

TABLE 13.— *Mortality from Pneumonia.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,144
Mortality	192	187	398	186	469	167	226	189	294	155
Percentage	0·50	0·44	1·08	0·44	1·21	0·38	0·58	0·43	0·75	0·36

TABLE 14.—*Mortality from Pleurisy.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,144
Mortality	60	42	128	189	122	55	74	53	76	39
Percentage	0·16	0·10	0·33	0·45	0·31	0·13	0·19	0·12	0·19	0·09

TABLE 15.—*Mortality from Meningitis.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,144
Mortality	31	66	59	62	62	58	70	82	33	55
Percentage	00·8	0·16	0·15	0·15	0·16	0·13	0·18	0·19	0·08	0·13

TABLE 16.—*Mortality from Peritonitis.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,144
Mortality	40	36	29	48	23	35	28	42	24	29
Percentage	0·10	0·09	0·07	0·11	0·06	0·08	0·07	0·09	0·06	0·07

TABLE 17.—*Mortality from Suicide.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,680	394,150	439,114
Mortality	114	235	110	267	118	235	123	234	115	234
Percentage	0·29	0·56	0·28	0·64	0·30	0·54	0·31	0·54	0·29	0·53

TABLE 18.—*Mortality from Accident.*

Strength	382,710	420,320	394,891	418,913	388,191	435,699	391,737	434,684	394,150	439,144
Mortality	77	141	56	146	103	195	138	161	114	165
Percentage	0·20	0·33	0·14	0·35	0·27	0·45	0·35	0·37	0·29	0·38

1893-94.		1894-95.		1895-96.		1896-97.		1897-98.		1898-99.		1899-1900.	
French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
2,405	1,285	2,773	1,244	2,144	1,317	2,228	1,209	2,254	1,115	2,333	1,062	2,315	1,225
5·8	**2·9**	**6·8**	**2·5**	**5·1**	**2·6**	**5·0**	**2·3**	**5·0**	**2·2**	**5·4**	**2·1**	**5·6**	**2·4**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
101	17	469	14	70	11	80	14	120	5	139	12	258	14
0·25	**0·04**	**1·15**	**0·03**	**0·16**	**0·02**	**0·16**	**0·03**	**0·27**	**0·01**	**0·32**	**0·02**	**0·62**	**0·03**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
199	96	473	87	456	103	531	83	499	104	616	87	399	82
1·21	**0·21**	**1·16**	**0·17**	**1·08**	**0·20**	**1·20**	**0·16**	**1·11**	**0·21**	**1·40**	**0·17**	**0·96**	**0·16**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
86	—	34	2	42	2	45	3	52	—	35	—	72	—
0·21	**0·00**	**0·8**	**0·01**	**0·09**	**0·01**	**0·10**	**0·01**	**0·11**	**0·00**	**0·08**	**0·00**	**0·17**	**0·00**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
128	14	155	12	123	15	105	11	139	7	95	16	70	11
0·31	**0·03**	**0·38**	**0·02**	**0·29**	**0·03**	**0·24**	**0·02**	**0·31**	**0·02**	**0·22**	**0·03**	**0·17**	**0·02**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
41	27	21	17	19	14	14	8	25	7	23	7	25	11
0·09	**0·06**	**0·5**	**0·03**	**0·05**	**0·03**	**0·03**	**0·02**	**0·06**	**0·02**	**0·05**	**0·02**	**0·06**	**0·02**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
276	114	320	131	247	154	284	142	246	109	235	82	215	112
0·67	**0·24**	**0·78**	**0·26**	**0·58**	**0·30**	**0·64**	**0·28**	**0·55**	**0·22**	**0·54**	**0·16**	**0·52**	**0·21**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
176	41	193	38	196	34	201	54	197	50	158	47	206	72
0·43	**0·09**	**0·47**	**0·08**	**0·46**	**0·07**	**0·46**	**0·11**	**0·43**	**0·10**	**0·37**	**0·10**	**0·49**	**0·15**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
452	155	513	169	443	188	485	196	443	159	393	129	421	184
1·10	**0·33**	**1·25**	**0·34**	**1·04**	**0·37**	**1·10**	**0·39**	**0·98**	**0·32**	**0·91**	**0·28**	**1·01**	**0·36**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
23	4	50	3	36	11	51	4	21	4	35	3	53	1
0·06	**0·01**	**0·12**	**0·01**	**0·08**	**0·02**	**0·11**	**0·01**	**0·05**	**0·01**	**0·08**	**0·01**	**0·13**	**0·01**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
321	197	291	157	206	161	226	131	241	121	299	153	269	176
0·78	**0·42**	**0·71**	**0·31**	**0·49**	**0·31**	**0·51**	**0·26**	**0·53**	**0·24**	**0·69**	**0·31**	**0·64**	**0·34**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
65	63	97	39	55	36	57	29	69	38	43	27	59	19
0·16	**0·14**	**0·24**	**0·08**	**0·13**	**0·07**	**0·13**	**0·06**	**0·15**	**0·08**	**0·10**	**0·05**	**0·14**	**0·04**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
46	81	50	82	49	77	36	57	30	84	40	36	54	40
0·11	**0·18**	**0·12**	**0·16**	**0·11**	**0·15**	**0·08**	**0·11**	**0·07**	**0·17**	**0·09**	**0·07**	**0·13**	**0·08**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
28	42	19	31	28	37	25	26	3·	81	30	27	28	30
0·07	**0·09**	**0·05**	**0·06**	**0·07**	**0·07**	**00·6**	**0·05**	**0·07**	**0·16**	**0·07**	**0·05**	**0·07**	**0·06**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
125	226	95	234	108	234	110	225	124	206	121	164	81	190
0·30	**0·49**	**0·23**	**0·46**	**0·25**	**0·46**	**0·25**	**0·44**	**0·27**	**0·41**	**0·29**	**0·33**	**0·19**	**0·37**
411,846	466,255	408,638	505,811	423,401	514,410	442,440	514,698	450,262	514,538	432,685	514,569	416,857	520,869
137	160	132	141	119	165	152	152	122	140	82	157	104	176
0·33	**0·34**	**0·32**	**0·28**	**0·28**	**0·32**	**0·35**	**0·30**	**0·27**	**0·28**	**0·19**	**0·31**	**0·25**	**0·34**

TABLE 19.—*Mean Mortality for each of the Diseases considered from 1888-89 to 1899-1900.*

	Influenza.		Typhoid Fever.		Measles.		Scarlet Fever.		Diphtheria.		Dysentery.		Tubercu Pulmo
	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.
Strength	411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484
Mortality.....	136	12	551	101	54	1	101	12	37	14	41	4	287
Percentage	**0·33**	**0·03**	**1·34**	**0·21**	**0·13**	**0·01**	**0·25**	**0·03**	**0·09**	**0·03**	**0·10**	**0·01**	**0·69**

Tuberculosis.				Pneumonia.		Pleurisy.		Meningitis.		Peritonitis.		Suicides.		Acci
Of other Organs.		Total												
French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.
411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484
178	42	465	188	286	165	75	52	47	65	26	39	112†	224	111
0·44	**0·09**	**1·13***	**0·40**	**0·69**	**0·35**	**0·18**	**0·11**	**0·11**	**0·14**	**0·06**	**0·03**	**0·27**	**0·47**	**0·27**

TACTICAL LECTURE ON A CATECHETICAL SYSTEM.

By Major-General H. M. BENGOUGH, C.B., p.s.c.

Tuesday, 23rd June, 1903.

BEFORE entering on the subject which I have the honour of introducing to your notice this afternoon, I think it would be well that I should offer some preliminary words of explanation, and I may even say of apology.

And first as regards the title of our subject: "Tactical Lecture on a Catechetical System," is a formidable mouthful, and can hardly be regarded as an attractive title for a lecture on a fine Midsummer's day. It has a savour of National Schools about it, with perhaps a sub-flavour of the Educational Bill. I fear that it may be partly owing to the formidable character of the title of my lecture that we have so small a house this afternoon, and I regret this the more as the very essence of the system which I wish to explain to you is that there should be a fairly numerous audience; unfortunately too, notwithstanding its imposing appearance, the title does not fully express the object of my lecture. For, in the first place, I do not wish to appear in the rôle of a lecturer at all to-day. Indeed to lecture is the very opposite of my intention. I wish to transfer the burden and responsibility of criticism from my shoulders to those of my audience, or at least to invite them to share the burden with me. Perhaps "Tactical Studies on a System of Mutual Instruction" would more nearly express my object, which is to obtain the opinion of those present on certain tactical problems which I propose to submit to them. In doing so I find myself confronted at the outset by a not unforeseen difficulty, the natural modesty and reticence of British officers, and especially of junior officers whose views I am particularly desirous of having, in expressing an opinion in public on any professional subject. This difficulty I have hoped to overcome by resorting to the plan of a *show of hands*, by which, though the personal element is eliminated, yet I hope to get a collective opinion on the problems under consideration.

And as regards my apology. I have to confess that my lecture, as I must, I fear, continue to call it for the sake of convenience, is more or less an experiment, and I cannot but feel that some among my audience may reasonably object to being made subjects of public experiment; but as I have endeavoured to explain, no one will be personally subjected to any catechetical examination, the individuality of each will be shielded, and his modesty protected, under the *show of hands*.

And now to conclude my foreword, you see that I am here this afternoon without a Chairman—a lone and unprotected lecturer! I may say that this is not so because I could not find a Chairman willing to father myself and

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TABLE 19.—*Mean Mortality for each of the Diseases considered from 1888-89 to 1899-1900.*

	Influenza.		Typhoid Fever.		Measles.		Scarlet Fever.		Diphtheria.		Dysentery.		Tuberc Pulmo
	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.
Strength	411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484
Mortality.....	136	12	551	101	54	1	101	12	37	14	41	4	287
Percentage	**0·33**	**0·03**	**1·34**	**0·21**	**0·13**	**0·01**	**0·25**	**0·03**	**0·09**	**0·03**	**0·10**	**0·01**	**0·69**

Tuberculosis. Of other Organs.		Tuberculosis. Total		Pneumonia.		Pleurisy.		Meningitis.		Peritonitis.		Suicides.		Acci
French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.	German Army.	French Army.
411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484	474,992	411,484
178	42	465	188	286	165	75	52	47	65	26	39	112	224	111
0·44	**0·09**	**1·13**	**0·40**	**0·69**	**0·35**	**0·18**	**0·11**	**0·11**	**0·14**	**0·06**	**0·03**	**0·27**	**0·47**	**0·27**

TACTICAL LECTURE ON A CATECHETICAL SYSTEM.

By Major-General H. M. BENGOUGH, C.B., p.s.c.

Tuesday, 23rd June, 1903.

BEFORE entering on the subject which I have the honour of introducing to your notice this afternoon, I think it would be well that I should offer some preliminary words of explanation, and I may even say of apology.

And first as regards the title of our subject: "Tactical Lecture on a Catechetical System," is a formidable mouthful, and can hardly be regarded as an attractive title for a lecture on a fine Midsummer's day. It has a savour of National Schools about it, with perhaps a sub-flavour of the Educational Bill. I fear that it may be partly owing to the formidable character of the title of my lecture that we have so small a house this afternoon, and I regret this the more as the very essence of the system which I wish to explain to you is that there should be a fairly numerous audience; unfortunately too, notwithstanding its imposing appearance, the title does not fully express the object of my lecture. For, in the first place, I do not wish to appear in the rôle of a lecturer at all to-day. Indeed to lecture is the very opposite of my intention. I wish to transfer the burden and responsibility of criticism from my shoulders to those of my audience, or at least to invite them to share the burden with me. Perhaps "Tactical Studies on a System of Mutual Instruction" would more nearly express my object, which is to obtain the opinion of those present on certain tactical problems which I propose to submit to them. In doing so I find myself confronted at the outset by a not unforeseen difficulty, the natural modesty and reticence of British officers, and especially of junior officers whose views I am particularly desirous of having, in expressing an opinion in public on any professional subject. This difficulty I have hoped to overcome by resorting to the plan of a *show of hands*, by which, though the personal element is eliminated, yet I hope to get a collective opinion on the problems under consideration.

And as regards my apology. I have to confess that my lecture, as I must, I fear, continue to call it for the sake of convenience, is more or less an experiment, and I cannot but feel that some among my audience may reasonably object to being made subjects of public experiment; but as I have endeavoured to explain, no one will be personally subjected to any catechetical examination, the individuality of each will be shielded, and his modesty protected, under the *show of hands*.

And now to conclude my foreword, you see that I am here this afternoon without a Chairman—a lone and unprotected lecturer! I may say that this is not so because I could not find a Chairman willing to father myself and

my subject, for I did not seek one. Neither is it that I do not value the presence of "the Chair." I think a well-selected Chairman lends a certain dignity to a lecture, and is a sort of moral support to the lecturer, who is at least assured of an audience, and moreover of one who is bound in honour to sit it out to the bitter end; but, as I have said, my subject is an experimental one, and I thought it best that it should stand or fall on its own merits. I would therefore ask you to exercise your charity, and "be to its virtues [if you can find any] ever kind, and to its faults [of which you will no doubt find many] a little blind."

Object of System.

The object of my proposed system is, I think, pretty plain. It is to combat that *bête noire* of lecturers and lectured—and it seems that nowadays everyone is either the one or the other, and often both the one and the other—inattention. Who has not at times felt the difficulty in keeping one's attention steadily fixed on the subject of a discourse, be it from the pulpit, political platform, or public dinner table, and this notwithstanding the real interest of the subject and the eloquence of the orator? I dare say that some among you, Gentlemen, can remember, as I do with a deep feeling of shame, when sitting under the eyes of one of our dear old professors at the Staff College, who was perhaps heroically struggling with one of those interesting chemical experiments that never would come off, or of another perhaps who was trying to instruct us as to the exact number of wagons and carts possessed by a given unit of the Army Service Corps, or other equally important and interesting item of information, how the fatal wave of drowsiness would gradually overwhelm you. Suppose then that the Professor of Chemistry was to suddenly announce: "Gentlemen! I am about to propound to you a question on which I desire your opinion. Do you consider that a cat's back, or a piece of sheet glass, is the better conductor of electricity?" Would not the effect be to electrify the class, and to ensure that there would be no more drowsiness, at any rate during that afternoon? I think then that you will agree that such a system has its value, and is at least worth a trial. I think it might be found specially useful in teaching minor tactics to classes of junior officers or non-commissioned officers.

The System I Suggest.

The working of the system should be something as follows. A campaign, or rather perhaps certain tactical incidents in a campaign, are selected, the data for their consideration are stated, the particular situation on which the problem depends is fully described, and the several courses open to the commander are pointed out. The audience are then invited to express their opinion by a show of hands as to which of the several alternate courses the commander should follow. The actual course adopted by the commander is then disclosed, and the result of his action is shown, as well as what history thought about it. Other situations are similarly treated, and finally the audience are asked to declare the name of the campaign. A general review and discussion on the whole subject would conclude the study. The advantage of selecting a real incident in war for study is of course that it is interesting and instructive to compare the views of the audience with those of the commander, and moreover, we have in forming our ultimate judgment the advantage of the light of historical criticism.

It may be noticed as a small, but not altogether unimportant, matter where simplicity is so desirable, that in describing the forces on either side, the plan has been adopted of lettering all places, etc., connected with one force with letters from the beginning of the alphabet, and those having to do with the opposite force with letters from the end of the alphabet, whilst those with no special connection with either force are lettered from the centre of the alphabet.

Illustration.

The subject that I have taken as an illustration of the system for this afternoon is the passage of a river in the presence of an enemy, perhaps the most formidable problem in war that can confront a commander. Before considering the special tactical lessons that this particular operation may convey, it will be well to briefly review the general principles that govern all such operations.

The passage of a river then comes under the technical head of "Obstacles." Obstacles in war are included in two main classes: artificial and natural. An artificial obstacle may be anything from a strand of barbed wire to the enceinte of a permanent system of fortification, as, for instance, the defences of Paris. Natural obstacles are various, but the two most important ones are mountain ranges and rivers. These are alike in their general characteristics, but differ in certain important particulars. In common with all obstacles they delay the advance of an enemy, cause him to contract the front of his columns, and compel him to deploy in the face of, and frequently under the fire of, the defence. They also limit the number of roads for supplies—a very important consideration. But they differ inasmuch as in mountain ranges the lateral communications are generally few and difficult, being chiefly mountain paths. Thus it is possible for a force to surprise a pass weakly defended before the defence can concentrate, and thus to issue on the flank or even rear of the line of defence. With rivers it is different. The communications along a river bank are generally numerous and good, the passages, by bridges or fords, are many, and moreover bridges can be thrown almost anywhere. Reconnaissance, and the ascertaining of anything like accurate knowledge of the adversary's position and numbers, are in both cases rendered very difficult.

General Principles of Attack.

It follows from the above that an attempt to cross the defended line of a river must be in the nature of a surprise or made in very superior numbers.

Clearly, the first duty of a commander who contemplates such an undertaking should be to clear the enemy from his own side of the river, and to make as complete reconnaissances of the position as may be possible. Much may be done by an active and enterprising cavalry and by a well-organised system of spies, and even reconnaissances in force may be employed, though this requires very skilful handling. Generally it will be determined to gain a footing on the opposite bank by turning one or other of the defensive flanks. In so doing an important principle comes into play which you will find exemplified in our study this afternoon. It is this: a commander having effected a crossing over a river above or below the defended point, must, in moving along the river to attack that point, expose his outward flank to an attack by the defence; and more

than that, for if in so moving he lets go his point of passage before he gains another passage, he will, if defeated, be liable to be driven, not across, but into the river. Having now cleared the ground, let us proceed to consider the first situation.

1st Situation.

Data.	A Force.	Z Force.
Strength of Forces...	120,000 men of all arms; 11,000 cavalry, trained as mounted infantry; complete pontooning equipment.	50,000 men of all arms; 3,000 cavalry or mounted infantry; 300 guns, many heavy. Strongly entrenched.
Character of Troops .	Brave, but imperfectly disciplined. Few good officers.	Not thoroughly disciplined, but enthusiastic, and well commanded.
Character of Commanders	General C, lately appointed, without much military talent. General D, who succeeds him, a good divisional commander only.	General W, an able and successful commander, having the full confidence of his troops.
Base	B town, capital of A State, 60 miles N. of position of army.	Y town, capital of Z State, 45 miles S. of position of army.
Objective	Immediate, defeat of Z force holding X town; Ultimate, occupation of Y town and defeat of Z forces.	Immediate, defeat of A force in front of X town; Ultimate, occupation of B town and defeat of A forces.
Country	Undulating and cultivated, partly enclosed, and with extensive and dense forests. X town commanded by heights on N. and S. side of river. Population friendly to Z forces.	
Railways	Exist, but do not affect the scheme.	
Rivers ...	K river unfordable, 200 yards wide, medium current.	
	L river, „ 100 „ „ „ „	
Climate	Temperate. N. Hemisphere.	
Season	Spring.	

The considerations that present themselves to General C are something as follows. He believes himself to have a considerable superiority in numbers, but is uncertain as to the strength and position of the X force, and has learnt nothing by reconnaissance. He knows, however, his enemy to be strongly posted and entrenched, and to be commanded by a skilful leader, supported by experienced commanders, and confident and enthusiastic troops. On the other hand, his Government press on him energetic action.

Problem for General C.

1. Shall he attack, or
2. Stand fast and await opportunity.

Show of hands 1
Decision of General C 1

IInd Situation.

I would now invite attention to the disposition of General W for the defence of the position, as it forms a good typical illustration of how to defend the passage of a river, a problem only less difficult than that of the attack. (See sketch.) The general principle followed is not to attempt to hold all the passages in force, but to guard the important ones with strong detachments in complete units, watch all passages with vigilance, keeping in hand strong central reserves, and making good or improving lateral communications. The latter point General W considered of even more importance than that of providing cover for his men.

Problem for General W.

Should he strengthen any particular part of his position?

1. His right flank.
2. His left flank.

Show of hands ... ... Undecided.
Decision of General W 1

And why?

Because his right flank is tactically and strategically the weaker: for his left flank is naturally strong by M hill, and the P forest would enable a small force, skilfully handed and knowing the ground, to check a considerable force advancing from II., III., or IV. fords; whereas the river at J, being a re-entering angle as regards the attack, is favourable for effecting a passage by pontoons; the small wood I, which it had not been possible to cut down, would afford cover to the attack, and the railway, the shortest line of communications with the capital, would be exposed. Hence General W posts two complete divisions on that flank.

IIIrd Situation.

We now return to General C, who, as we have seen, has determined to force the passage. But how?

Problem for General C.

Three courses are obviously open to him.

1. To attack right flank.
2. To attack left flank.
3. To attack centre.

For 1. A surprise is possible. There is a favourable place for a crossing, and the passage might be effected before the defence could concentrate. The crossing accomplished, the I wood would assist an advance, and the attacking force might strike the railway and cut General W's line of supplies.

For 2. The crossings are easy on account of the division of the river, and a movement by this flank would turn the strong defences on M hill, and the position generally.

For 3. The heavy artillery on O hill would cover the crossing by pontoons. The attack might cut the Z force in two before it could concentrate.

Show of hands 2
Decision of General C 1

General C marches down the river to point J, finds the passage defended, gives up the project, and returns to his position.

IVth Situation.

General C is still determined on forcing the passage of the river.

Problem for General C.

The same three courses are open to him, but he has now the knowledge that the defence of the right flank has not been neglected.

Shall he attack the
1. Right,
2. Left, or
3. Centre.

Show of hands again for 2.

General C elects 3, hoping to force the attack before General W's right wing can co-operate.

His dispositions are: one corps to cross below Y town, whilst main attack is developed against the centre of the position and M hill.

Result.

Both crossings are successfully accomplished under cover of the heavy guns, but the attack fails from: (1) contradictory orders; (2) unsupported attacks; (3) want of confidence in the attempt openly expressed by subordinate commanders, and reacting on the spirit of the troops.

Vth Situation.

General C is recalled by his Government, and General D is appointed to the command. General D is a popular personality, and a good divisional leader, but has no experience in superior command. He elects to cross by the upper fords, and turn the left of the defence. His plan is to detach his left wing, three corps, to cross by pontoons below the town, with orders, if General W weakens his entrenchments, to attack and occupy them. With four corps, General D would cross at II. and III. fords, march down the right bank of the river till joined by a corps of left wing, to be detached to join him by I ford; then to attack the Z force in conjunction with the left wing, which should before then have gained possession of Y town and its defences.

An interesting question arises as to the disposal of the cavalry of A Force. They number nearly 11,000 men, but are, as regards training, little more than mounted infantry.

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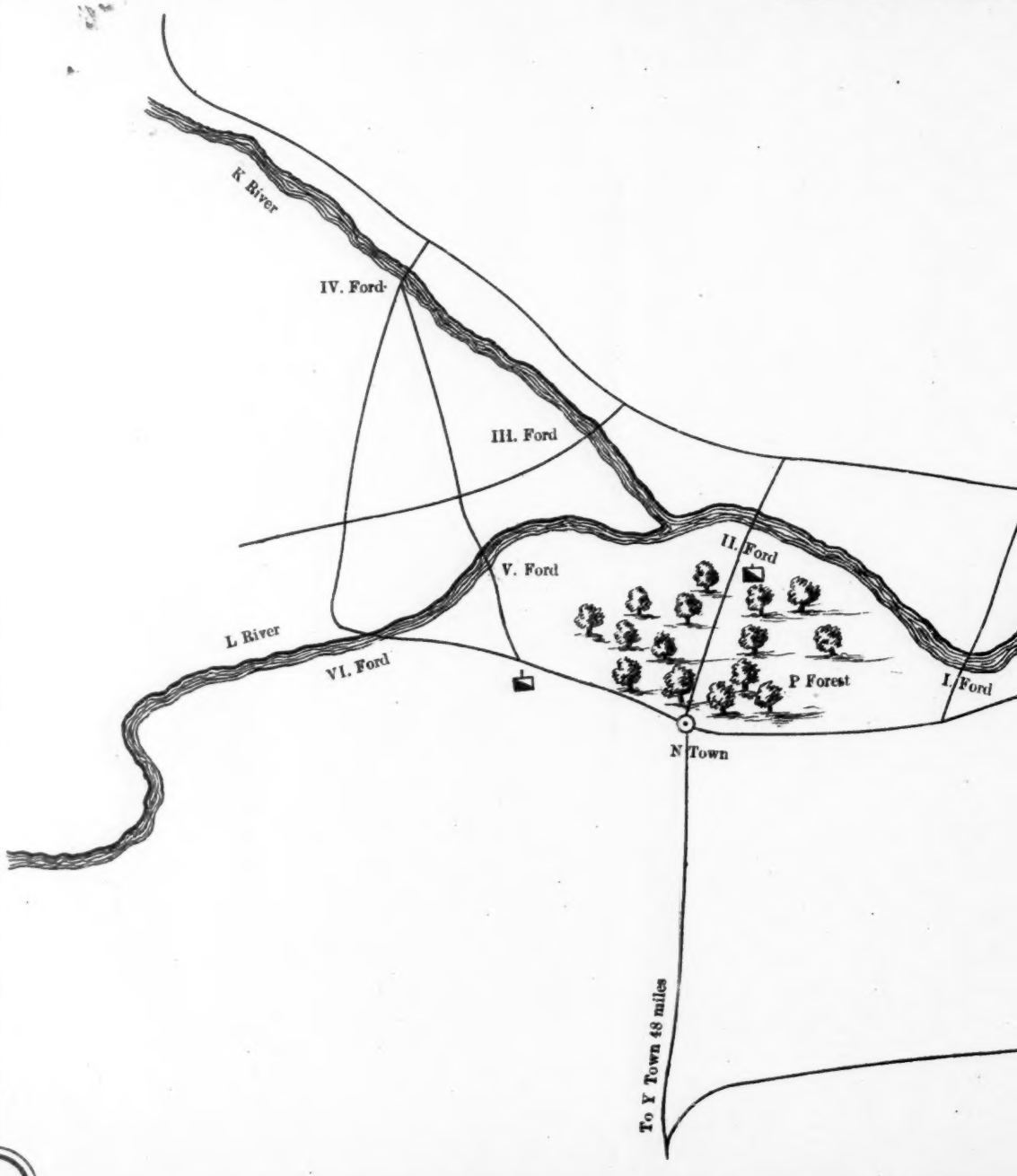
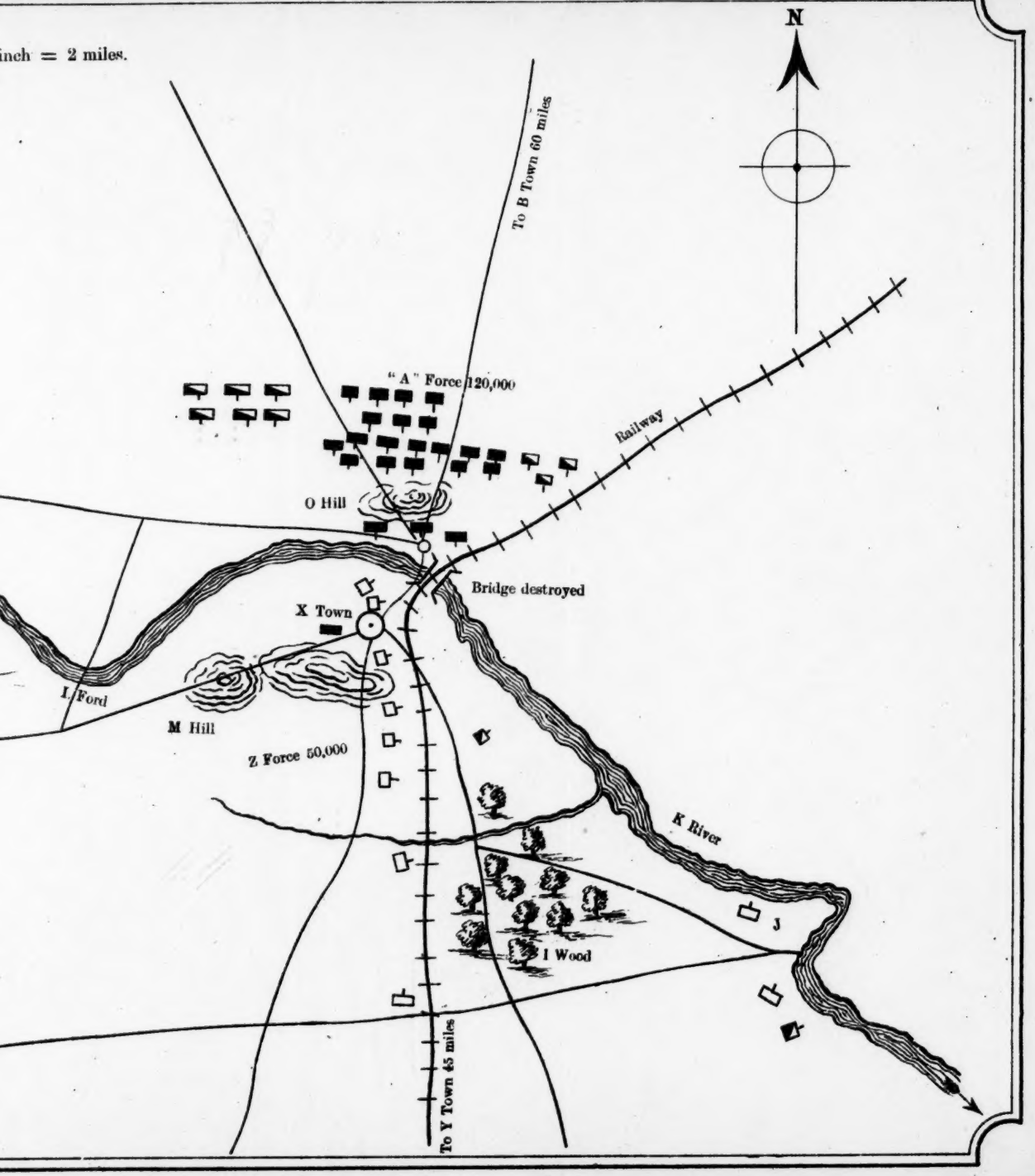
SCALE.—1 inch = 2 miles.



J. J. Keliher & Co. Ltd. Litho. London

inch = 2 miles.


N
To B Town 60 miles
"A" Force 120,000
Railway
O Hill
Bridge destroyed
X Town
I Ford
M Hill
Z Force 50,000
K River
J
I Wood
To Y Town 45 miles

Shall General D employ them,

1. As escort to the column, and afterwards for tactical purposes, as circumstances might demand, or
2. Should he detach them on special duty, to work independently and as a separate body against the enemy's lines of communications, in what is called a raid.

Show of hands	...	...	... 2
Decision of General D	...	...	2

Result.

He instructed his cavalry commander to move off ten days before the date fixed for his own movement, to pass at the upper fords, work round the rear of the enemy's line of defence, break up the railway, capture his supplies, and even threaten the capital, Y town. The result was disappointing. The cavalry were delayed for a week in passing the fords by heavy rain and floods. General D, becoming impatient, would not delay his own movement. The cavalry eventually crossed, but too late for its action to benefit the general scheme; it effected nothing of importance, and its services were lost to the commander at a time when they might have been the governing power in the situation.

VIth Situation.

General W has been informed of his adversary's movements, and has to decide on his own line of action. He could,

1. Stand fast and await attack.
2. Move against the attack on his right flank.
3. Move against the attack on his left flank.

Considerations.

1. Would expose him to an attack on both his flanks and rear.
2. Would be of no avail should the main attack be that on the left flank.
3. Would probably entail the loss of his present position, but would give his army freedom of movement, and the chances of the field.

Show of hands	...	...	... 3
Decision of General W	...	...	3

General W, having recognised from the tardy advance of the enemy's left wing that the movement against his right was not the real attack, leaves 5,000 men in his entrenchments, and moves with the remainder of his force, some 45,000 men, against the A force, then making its way with difficulty through the dense P forest. He employs a division to check their advance, and forms the bold resolve to detach a force of 26,000 men under a trusty and well-tried lieutenant of remarkable military talent, General V, with directions to move round by the outside of the forest to the right rear of the invading force, and attack promptly, whilst he himself, with some 20,000 men, held the enemy in front.

VIIth Situation.

General D, having crossed the rivers at the upper fords without much opposition, established himself on the right bank. The country is thick forest and dense scrub, rendering progress slow. He is uncertain as to the strength of the force opposing his advance, and is anxious about the arrival of the corps which was to join him from the left wing.

Problem for General D.

1. To push on and clear up the situation.
2. To entrench and await news of the expected corps.

Show of hands 1

General D decides to delay advance.

VIIIth Situation.

The flank march of General V was completely successful. He found the rear of the army unprepared to resist an attack. He attacked at sunset, and drove in the rear corps in rout. For the next two days heavy fighting took place between the two forces, General W pressing his opponent continuously in front, right, and rear. The left wing of A Force had, in the meantime, driven the weak garrison of X town from their intrenchments, though with considerable loss, and advanced to join the main army, still entangled in the forest. General W, however, was able to detach a force to check their advance, and succeeded so well that the wing, unable to obtain information of their commander-in-chief's position or intentions, was compelled to re-cross the river at I ford.

Problem for General D.

1. To cut his way through the forest into the open country, where his superior numbers would tell.
2. To retire over river.

Show of hands 1
Decision of General D 2

His reasons for so deciding were alleged to be: —

1. Difficulty of supply—twelve miles of road on the opposite side of the river.
2. Uncertainty as to number of Z forces.
3. Demoralised state of his army, after four days' hard fighting, with nothing gained.
4. Fear of floods destroying his bridges, or of General W doing so.

He succeeded in re-crossing the river on a dark, stormy night, without loss.

You are invited to name the campaign, which, if you fail to identify it, will be found on the next page.

The Campaign discussed was that of Fredericksburg and Chancellorsville, 1863.

The campaign is one of the most remarkable ones in history, illustrating as it does what military skill, boldness, and judgment can achieve against superior numbers. Indeed, the only campaign that can be compared with it in this respect is that of Leuthen, fought one hundred years before, in which Frederick the Great, with a force of 32,000 men, by a similar flank march, routed the Austrian Army of 90,000 men. In both cases the personal influence and genius of the commander were a chief factor in success. But we must not forget the debt due by General Lee, and which he was the foremost to acknowledge, to his trusty lieutenant, General John Jackson (Stonewall Jackson), who, as you will all remember, was shot by his own men on the evening of his great success. A dramatic close to an unsurpassed feat of arms.

I should be very happy indeed now if anybody would enter into a discussion, either on the merits of the system which I have been trying to expound to you, or on any point of the campaign which we have been studying together. I have not been lecturing you, but I have been endeavouring to interest you in the campaign, and to gather from you your opinions on the several courses open to the commanders in the several situations described. If we had had a larger audience, the opinions of a number of soldiers on these questions would have been very interesting and instructive to us all, lecturer and audience. I am obliged to you, ladies and gentlemen, for your kindly attention to the lecture.

NAVAL NOTES.

HOME.—The following are the principal promotions which have been made: Captains—J. Denison to "Montagu"; E. A. Simons to "Illustrious"; F. J. Foley to "Cambridge"; R. E. Wemyss, M.V.O., to "Racer," for Osborne College; D. A. Gamble to "Kent." Commanders—F. W. Kennedy to "Medusa"; L. E. Power to "Alert"; A. C. Smith to "Iris." The following temporary appointments have been made for the manœuvres: Captains—F. L. Campbell to "King Alfred"; A. A. C. Galloway to "Blake"; H. L. Tottenham to "Conqueror"; W. O. Boothby to "Devastation"; F. E. Brock to "Diadem"; J. De C. Hamilton to "Dreadnought"; E. J. Fleet to "Imperieuse"; H. R. Robinson to "Iphigenia"; C. W. Winnington-Ingram to "Latona"; J. Startin to "Powerful"; C. H. Dundas to "Scylla." For special service in connection with the manœuvres in Irish Channel: Captains— C. G. Dicken in Chief Command of Blue torpedo-craft; G. Le C. Egerton, C.B., in Chief Command of Red torpedo-craft; A. Dodgson to Command of Kingstown torpedo-flotilla; C. F. Thursby to Command of Waterford torpedo-flotilla; E. F. B. Charlton to Command of Queenstown torpedo-flotilla.

Rear-Admiral G. L. Atkinson-Willes, the new Commander-in-Chief on the East Indies station, arrived at Aden on the 21st ult., and hoisted his flag on board the "Highflyer" on the 25th ult., assuming command of the station; the second-class cruiser "Hyacinth," a sister ship to the "Highflyer," commissioned at Devonport on the 21st ult. to replace the latter as Rear-Admiral Atkinson-Willes' flag-ship, and has since left for her station. The second-class cruiser "Pique" arrived at Plymouth from China on the 2nd ult., and paid off on the 4th inst. at Devonport. The third-class cruiser "Cossack" arrived at Plymouth from the East Indies on the 5th ult., and paid off on the 6th inst. at Chatham. The first-class armoured cruiser "Leviathan" left Portsmouth, on the 18th ult., for China. The new first-class armoured cruiser "Kent" commissioned on the 1st inst. at Portsmouth, to relieve the second-class cruiser "Brilliant," in the Cruiser Squadron; the "Brilliant" paid off on the 18th ult. at Portsmouth. The new first-class battle-ship "Montagu" commissioned at Devonport on the 27th ult. for the Mediterranean station, where she will relieve the "Ramillies."

The Fleet Manœuvres.—The following are the material parts of the official programme of the Fleet Manœuvres issued by the Admiralty:—

The Composition of the Fleets.

"B" Fleet.

Vice-Admiral Sir A. K. Wilson, V.C., K.C.B.

"B 1" Fleet.

Battle-ships.	*Cruisers.*
Revenge (Flag)	Good Hope (Flag)
Empress of India (Flag)	Drake
	Sutlej
Royal Oak	Hogue
Royal Sovereign	Edgar
Hood	Hawke
Benbow	Dido
Sans Pareil	Venus
	Melampus
	Latona
	Apollo
	Andromache
	Æolus
	Medea
	Medusa

"B 2" Fleet.

Battle-ships.	*Cruisers.*
Majestic (Flag)	Europa
Magnificent (Flag)	Doris
Mars	Hermes
Jupiter	Minerva
Hannibal	Rainbow
Prince George	Sappho
Repulse	Prometheus
Ramillies	

"X" Fleet.

Admiral Sir Compton Domvile, G.C.V.O., K.C.B.

Battle-ships.	*Cruisers.*
Bulwark (Flag)	Bacchante (Flag)
Venerable (Flag)	King Alfred
London	Aboukir
Formidable	Powerful
Implacable	Imperieuse
Irresistible	Diadem
Russell	Spartiate
Exmouth	Blake
Cæsar	Diana
Illustrious	Gladiator
Renown	Vindictive
	Hermione
	Naiad
	Intrepid
	Iphigenia
	Spartan
	Scylla
	Pandora
	Pioneer
	Pyramus
	Pegasus

General Remarks.—The manœuvre area is unrestricted except as regards the territorial waters of France and Spain, his Majesty the King of Portugal having given permission for the use of his territorial waters for manœuvre purposes. The manœuvre fleets will be known as "B" Fleet and "X" Fleet, the former being divided into "B 1" and "B 2." The composition of the fleets will be approximately as shown above. The two fleets will be distinguished from each other by the ships of "B" Fleet keeping two "not under control" balls hoisted vertically on the triatic stay about half-way between the fore and main masts, night and day. As these balls are intended to provide means for mutual identification at a distance between the vessels of the opposing sides, such as would naturally be the case between the vessels of hostile nations in war, these distinguishing balls are, on no account, to be hoisted by any vessel belonging to "X" Fleet, nor hauled down at any time by those of "B" Fleet. "B 1" Fleet is concentrating in the Channel ports, England and Ireland being "B" territory. "B 2" Fleet is concentrating at Madeira, which is also "B" territory. "X" Fleet is concentrating at Lagos, which, together with the coast of Portugal and Gibraltar, is "X" territory.

General Idea.—The contest for the command of the sea between the two maritime countries, "B" and "X," has been in progress for some time. In the waters approximately between Gibraltar and Madeira "X" has been victorious, and "B" driven, with loss, into his defended port at Madeira. In northern waters, however, "B" has so effectually disposed

of the enemy's fleet that he is able to despatch a force ("B 1") to the south for the purpose of combining with his available forces at Madeira ("B 2"), and then engaging "X," known to be concentrating at Lagos. The Admiral in command of "B 1" has given his junior, the Admiral commanding "B 2," the necessary instructions by cable. The Admiral Commanding "X" Fleet, while still preparing for sea at Lagos, hears from reliable sources by cable that two squadrons belonging to "B" have sailed from their home ports, obviously with the intention of joining at sea and effecting a junction further south with the fleet known to be preparing for sea at Madeira. "X" battle-ships are ready for sea 20 hours after "B 1" has sailed, and "X" has had reliable information that "B 2" battle-ships are at that time still refitting. Both "X" and "B 2" cruisers are, however, ready for sea at the time when "B 1" Fleet sailed—*i.e.*, 8 a.m., 5th August.

General Instructions.—The operations will commence at 8 a.m. on 5th August, when the vessels of "B 1" Fleet will sail for a rendezvous to be determined by the Admiral Commanding "B Fleet." The "X" cruisers will be free to sail at 8 a.m. on 5th August, the battle-ships 20 hours later —*i.e.*, 4 a.m., 6th August. "B 2" cruisers are free to sail at 8 a.m., 5th August. The "B 2" battle-ships are to be ready to sail at such time as the Admiral Commanding "B Fleets" may direct after noon on 6th August. On the conclusion of the operations all ships will proceed to Lagos. The Mediterranean, Channel, and Home Fleets, and Cruiser Squadron will then carry out tactical exercises. All specially commissioned and completed vessels will return to England, carrying out target practice under the orders of the senior officer during the passage. One-half of a quarter's allowance of ammunition is to be expended from the heavy, light, Q.F., and machine guns of the vessels specially commissioned. When the target practice has been completed, these vessels will proceed to their respective ports, where the ships specially commissioned will be inspected by the Commander-in-Chief and be paid off.

Rules and Regulations.—No rules setting forth the conditions under which ships will be put out of action will be issued. Each case must be decided by the umpires on its merits, on the basis of what would be probable in war. When two or more ships come into action, the commencement of the engagement is to be marked by the firing of a gun by one of the ships engaged. During the engagement single guns are to be fired at about one-minute intervals by the ships engaged, and a careful record of gun-fire, etc., is to be made on the forms supplied. When either side considers that he has beaten the other, he should signal "Propose reference to umpires." If the other agrees to the reference, the action is to cease. If the other does not agree, the action may continue, but not for more than a reasonable time, say, one hour, which is to be determined by the senior officer present. When reference to the umpires has been agreed upon, the senior officer present is to determine what ships on either side are to proceed into port to await their decision, pending which the ships detached are to be considered out of action. The senior officer present must take care to select, as far as possible, equitably from both sides. If a ship is undoubtedly torpedoed or manifestly overpowered by a much superior force, the senior officer present may take the responsibility of temporarily putting such ship out of action, and order her into port for the decision of the umpires. In this case it will not be obligatory to order into port a ship from the opposite side. Ships put out of action can take no further part in the manœuvres, but must return to Lagos flying the blue peter at the fore. They are to select a route as far as

possible clear of the scene of operation, and are strictly enjoined not to communicate any information to the ships on either side which they may meet on the way. Should the Admiralty desire to communicate with the fleets during the progress of "hostilities," and their instructions be conveyed by a ship attached to either of the opposing forces, or by any other ship, such a ship is to display the signal "A.K.H." It will thus be known that she is acting under Admiralty orders, or is about to deliver despatches or telegrams, or to signal orders received from the Admiralty, and the respective Admirals and senior officers are to take the necessary steps to ensure that the orders so communicated are forwarded and acted on without delay. If the commanding officer of one vessel sights another flying the signal "A.K.H.," he is at once to close her so as to place himself at a convenient distance for communication by signal, should it be necessary. Colliers are not open to attack at sea. During the operations ships are not to enter foreign territorial waters, except those of Portugal.

Torpedo Craft Manœuvres, 1903.—The following rules were issued by the Admiralty :—

1. These rules have been drawn up for the guidance of all who may be employed in the 1903 Torpedo Craft Manœuvres, and are to be used by the umpires in giving their decisions. In the event of questions arising which the rules do not provide for, the umpires will decide as they think fit.

2. The Blue Side territory extends from Malin Head to Brow Head inclusive on the East Coast of Ireland, and Carrickfergus, Kingstown, Waterford, Lundy Island, and Queenstown are to be considered as defended Blue ports, each of which except Lundy is the headquarters of a flotilla. No Red vessel of any kind is to enter the limits of the first four of these ports at night, or approach within 8,000 yards of those limits by day. The limits are to be defined as follows :—Carrickfergus.—A line drawn from Kilroot Point to Grey point. Kingstown.—A line joining the outer extremities of the breakwaters. Waterford.—A line from Hook Point to Red Head. Lundy Island.—The circumference of a circle having a radius of two miles, with its centre at the War Signal Station. Queenstown may be entered for the purpose of attacking the Blue cruiser lying inside, subject to the risk of being put out of action, as provided for in Arts. 10 (*a*) and 12. The shore defences here will be actually manned.

3. The Red Side Territory extends along the West Coast of Great Britain from the Mull of Cantyre to the Scilly Islands inclusive, and Loch Ryan, Holyhead, Milford Haven, and the Scilly Islands are to be considered as defended Red ports. No Blue vessel is to enter the limits of these ports except Milford Haven, or approach within 8,000 yards of those limits by day. The limits are to be defined as follows:—Loch Ryan.—A line drawn from Finnart Point to Milleur Point. Holyhead.—A line drawn from the outer extremity of the breakwater to Clipera Point. Scillys.—The circumference of a circle with a two-miles radius having its centre at Stevel Point, the Western extremity of St. Mary's Island. Milford Haven may be entered for the purpose of attacking Red ships inside, except the depôt ship, subject to the risk of being put out of action, as provided for in Arts. 10 (*a*) and 11 (*a*). The shore defences here will be actually manned.

4. "Hostilities" will commence at midnight on August 2nd-3rd and end at noon on August 8th. At the commencement the disposition of the

contending forces will be as shown on the attached list, but when war has been declared all vessels may leave their ports and be moved as the officers in chief command on each side think fit, excepting the depôt ships, which are to be considered as fixed bases.

5. The object of the Red side will be to torpedo the four Blue cruisers. As these vessels are supposed to represent part of a larger cruiser force out of reach, which can substitute other ships for them if destroyed, the effort is to be made every 24 hours counting from noon to noon, commencing at noon on August 3rd; and when successfully attacked they are only to remain out of action till the noon following. The object of the Blue side will be to render the sea safe for Blue cruisers, by putting as many of the Red side out of action as possible in the time at their disposal. On both sides, however, the operations must be considered as an experiment to ascertain the conditions of torpedo craft warfare, as far as is practicable in peace manœuvres, and not as a question of defeat or victory for either side.

6. For the purposes of identification, especially during night engagements, each gun-boat, destroyer, and torpedo-boat will be given a secret number or letter known only to her own side and the Umpires. This number is to be painted in white letters on a black ground on boards on each side of the funnels, and another showing aft over the taffrail, in figures of such a size that they can be deciphered with the aid of a glass at night from a distance of two cables when carried by a torpedo-boat or Red destroyer, six cables by a Blue destroyer, and eight by a gun-boat. The successful deciphering of the number by a ship of the opposing side is supposed to establish the fact that the latter has succeeded in getting within range for a sufficient period to put the vessel bearing the number out of action, if of inferior power. Care is to be taken that these numbers are in no way concealed or obscured.

7. For the purposes of the manœuvres the gun-vessels "Curlew" and "Landrail" are to be considered as cruisers. These ships together with the "Isis" and "Aurora" are to provide the special objective of the Red side, and of the four, three will be always under weigh in the water space separating Red and Blue territory, each of which will be within 30 miles of the outer limits of a separated Red "defended" port every night from 10 p.m. till 2 a.m. during the manœuvres, except on the night of August 2nd-3rd. The fourth will be at anchor outside the southern limit of the man-of-war road in Queenstown Harbour. All four ships are to be considered as open to attack wherever they may be. Where the 30-mile radius from Loch Ryan overlaps the limits of the Blue defended port at Carrickfergus, the cruisers will remain outside the latter.

8. All destroyers on the Red side are to be considered as torpedo-boats, in order to represent an enemy strong in that class of vessel. For this purpose they are to be restricted to the use of half boiler power only, and are never to fill up to more than two-thirds of their total coal capacity.

9. A cruiser can put an indefinite number of the opposing ships out of action subject to the conditions below, but can only be put out of action herself by being torpedoed, or by getting within 8,000 yards of the entrance to a hostile defended port. To successfully torpedo her a vessel must get within 600 yards and fire a Very's light before being discovered if the cruiser is under weigh, or within 1,000 yards if she is at anchor.

10. A gun-boat is to be considered as equal to 4 destroyers or 16 torpedo-boats, unless her fighting power has been reduced as provided for

below in paragraph *c*. A gun-boat is to be put out of action :—*a*. If within 3,000 yards of a hostile cruiser for five minutes by day, which in all cases is to mean between 3 a.m. and 9 p.m. or if her secret number is deciphered by a cruiser, depôt ship, other gun-boat, or shore defences at any time. *b*. If within 2,000 yards of one hostile gun-boat for 15 minutes by day, or if her number is deciphered by the same at any time. In this case the two ships will put each other out of action. *c*. If within 2,000 yards of two hostile gun-boats for 10 minutes by day, or if her secret number is deciphered by both at, or about, the same time at night. In this case each of the two hostile ships will have her fighting power reduced by 50 per cent. for the remainder of the manœuvres. *d*. If within 2,000 yards of three or more hostile gun-boats by day, or if her secret number is deciphered by all three at, or about, the same time at night. In this case none of the three hostile ships shall be put out of action, or suffer reduction of fighting power. *e*. If she has successfully claimed 4 destroyers or 16 torpedo-boats.

When an aggregate number of 4 destroyers or 16 torpedo-boats has been successfully claimed by the gun-boats of one side, but no individual gun-boat has claimed that number alone, one of the gun-boats is to be selected by the umpires as out of action, the choice depending upon the merits of the case, and in general upon the ship that has successfully claimed most. This is to be repeated for every 4 destroyers or 16 torpedo-boats so claimed. *f*. If she gets within 8,000 yards of the limits of a hostile defended port by day.

11. A Blue destroyer is to be considered the fighting equivalent of 4 torpedo-boats, but a Red destroyer is to be considered as a torpedo-boat only in all respects. A Blue destroyer will be put out of action :—*a*. If her secret number is deciphered by a gun-boat or depôt ship, or by the shore defences. *b*. If within 2,000 yards of a gun-boat for 5 minutes by day. *c*. If she has successfully claimed 4 torpedo-boats.

When an aggregate number of 4 torpedo-boats has been claimed by the Blue destroyers, but no individual destroyer has claimed that number on her own account, one of the destroyers is to be put out of action in the same way as in the similar case of the gun-boats dealt with in Article 10. *d*. If she gets within 8,000 yards of the limits of a hostile defended port by day.

12. A torpedo-boat or Red destroyer will be put out of action :—*a*. If her secret number is deciphered by any of the opposing side, including Queenstown shore defences. *b*. If under the search-light of a Blue cruiser for 1 minute by night before firing her torpedo at the latter. *c*. If within 2,000 yards of a cruiser for 1 minute, or a gun-boat or destroyer for 2 minutes by day.

13. Depôt ships are supposed to represent fixed shore bases and are not therefore to be liable to attack, but they may use their search-lights to detect hostile vessels watching the entrances to their ports at night, and vessels whose numbers may be deciphered in this way will be put out of action.

14. Vessels while engaged are to fire blank from a light Q.F. gun at the rate of two rounds per minute. When a torpedo attack is made, a Very's light is to be fired at the moment when the torpedo would be discharged, all adjustments, etc., having first been most carefully made. No vessel is to fire more lights than the number of torpedoes she is actually carrying. All vessels are to have their full complement of torpedoes on board.

15. Claims against the enemy are to be made, firstly, by signalling or hailing to the ship claimed; and, secondly, by telegraphing direct to the Umpires through any signal station or telegraph office on the claiming ship's side. The telegram is to state clearly the hour at which the engagement took place, the Article in the Rules under which the claim is made, and the secret number of the ship claimed if deciphered. Officers in chief command on each side will make their own arrangement for the despatch of vessels to convey the claims of their flotillas, when the latter are too distant to communicate directly with their own signal stations, and generally for the maintenance of communication between the flotillas at sea and the head quarters. When the Umpires have decided on a claim the result of their decision is to be telegraphed without loss of time to the officer in chief command on each side in all cases, and these are to intimate the same by telegraph to any vessels on their own side which may be put out of action by the decision. Vessels out of action are to proceed forthwith to Milford Haven, or Queenstown according as they belong to Red or Blue side, and will remain out of action till the close of the manœuvres, except in the case of cruisers which will be as given in Article 5. While under weigh for these ports they will fly Z flag by day, and carry navigation lights at night.

16. The use of lights at night will be optional on both sides except for ships out of action, but every precaution is to be observed to prevent accidents.

17. A list of the forces taking part, and their general disposition at the commencement of the manœuvres, is attached hereto.

Disposition of Forces.

Blue Side—In chief command, Captain C. G. Dicken; staff, Commander R. Hudleston, Assistant Paymaster L. F. Vizard; head quarters, "Calliope," Kingstown; cruisers, "Isis," "Aurora"; gun-vessels, "Curlew," "Landrail."

Belfast Flotilla.—In command, Captain H. L. Tottenham; depôt ship, "Conqueror"; torpedo gun-boat, "Hebe"; destroyers, "Haughty," "Cheerful," "Sunfish," "Ranger," "Salmon," "Roebuck," "Racehorse," "Avon," Havock."

Kingstown Flotilla.—In command, Captain A. Dodgson; depôt ship, "Calliope"; torpedo gun-boat, "Spanker"; destroyers, "Sylvia," "Syren," "Shark," "Fervent," "Porcupine," "Lightning," "Star," "Hunter," "Zebra," "Starfish."

Waterford Flotilla.—In command, Captain C. F. Thursby; depôt ship, "Cleopatra"; torpedo gun-boat, "Skipjack"; destroyers, "Gipsy," "Fairy," "Falcon," "Skate," "Sturgeon," "Contest," "Osprey," "Leven," "Daring," "Decoy."

Queenstown Flotilla.—In command, Captain E. F. B. Charlton; depôt ship, "Black Prince"; torpedo gun-boats, "Grasshopper," "Sharpshooter"; destroyers, "Ferret," "Express," "Lively," "Sprightly," "Vigilant," "Leopard," "Tiger," "Vixen."

Red Side.—In chief command, Captain G. Le C. Egerton, C.B.; staff, Commander G. L. Sclater; head quarters, "Devastation," Holyhead.

Loch Ryan Flotilla.—In command, Captain W. de Salis; depôt ship, "Mersey"; torpedo gun-boats, "Niger," "Seagull"; destroyer, "Teazer"; torpedo-boats, Nos. 34, 45, 51, 52, 53, 55, 57, 58, 80, 85, 87.

Holyhead Flotilla.—In command, Captain W. O. Boothby; depôt ship, "Devastation"; torpedo gun-boats, "Renard," "Antelope," "Gleaner"; destroyers, "Recruit," "Vulture," "Peterel," "Brazen," "Dove," "Electra"; torpedo-boats, Nos. 25, 26, 33, 41, 42, 49, 59, 65, 67, 68, 71, 72, 76, 77, 78, 79, 82, 86, 109.

Milford Flotilla.—In command, Captain A. J. Horsley; depôt ship, "Northampton"; torpedo gun-boats, "Sheldrake," "Gossamer"; destroyer, "Bullfinch"; torpedo-boats, Nos. 98, 99, 107, 108, 110, 111, 112.

Scillys Flotilla.—In command, Captain J. de C. Hamilton; depôt ship, "Dreadnought"; torpedo gun-boats, "Alarm," "Onyx," "Speedwell"; destroyers, "Success," "Flirt," "Greyhound," "Lee," "Violet," "Kestrel," "Wolf," "Lynx," "Hasty," "Opossum," "Angler," "Mermaid," "Spitfire," "Charger," "Arab," "Ostrich."

Umpire Staff.—Chief Umpire, Rear-Admiral E. F. Jeffreys; umpires, Captain J. de M. Hutchison, Captain R. S. Phipps Hornby; secretary, Commander C. R. N. Burne; head quarters, Queenstown.

FRANCE.—The following are the principal promotions and appointments: Vice-Admirals—M. E. De Maigret to be a Member of the Superior Council of the Navy. C. J. Bayle to be Commander-in-Chief of the Fleet in China. Rear-Admirals—J. J. De Percin to command of Algerian Naval Division; C. Rouvier to command of a Division in the Squadron of the North; H. Jauréguiberry to command of Reserve Division in the Mediterranean Fleet. Capitaines de Vaisseau—F. E. Richard-Foy to "Borda"; A. A. Hallez to "Caïman." Capitaines de Frégate—F. L. Grosse to Capitaine de Vaisseau; E. F. Brion to command of *Défense Mobile* at Dunkirk; L. M. J. Viaud to "Vautour."—*Journal Officiel de la République Française.*

Vice-Admiral Pottier, Commander-in-Chief of the Mediterranean Squadron, died at Rochefort on the 5th inst., while on leave from his command. The deceased admiral was an officer of great distinction, an excellent organiser and tactician, and among his other good qualities had shown himself on more than one occasion a diplomatist of no mean ability. As a rear-admiral, commanding one of the divisions of the Mediterranean Fleet, he was sent to Crete during the disturbances, and was selected President of the Board of foreign admirals entrusted with the international administration of the island. As a vice-admiral, he served as Commander-in-Chief in China from July, 1900, to July, 1902, and on his return home was appointed to the command of the Mediterranean Fleet in succession to Vice-Admiral de Maigret on the 1st October of last year. Vice-Admiral Pottier, who was not in very good health, died almost to a day within two months of Vice-Admiral de Courthille, whose death suddenly on board his flag-ship on the 4th June last, when in command of the Northern Squadron, caused a great shock in naval circles, and he is the fourth vice-admiral on the active list who has succumbed this year while his flag was flying; he was 64 years of age, and had entered the Navy in 1855.

Rear-Admiral Jauréguiberry, who succeeds Rear-Admiral Besson in command of the Reserve Division of the Mediterranean Fleet, will hoist his flag on board the first-class battle-ship "Brennus" at Toulon on the 10th October; he has selected capitaine de vaisseau Sauvan, at present

in command of the coast-defence ship "Valmy" in the Squadron of the North as his flag-captain. It is reported that he will be succeeded as Chief of the Staff at Toulon by Rear-Admiral Bellue. Rear-Admiral Rouvier, who succeeds Rear-Admiral Péphau in command of the Second Division of the Squadron of the North, will hoist his flag on the 1st September on board the coast-defence battle-ship "Bouvines" at Cherbourg.

Vice-Admiral Bayle, who is to succeed Vice-Admiral Maréchal in command of the Fleet in China, the latter officer having been recalled, left Marseilles on the 9th inst. to take up his command. Some complaint is being made in the press that so important a squadron as the one in China will be for some weeks without any head, as Vice-Admiral Maréchal has already struck his flag, having been ordered home by telegraph, and his second-in-command, Rear-Admiral Le Dô, is seriously ill. The new Commander-in-Chief has only quite recently returned from the station, where he was second-in-command for two years.

Discipline in the Navy.—Two incidents which have recently taken place at Brest and Lorient seem to show rather a lack of discipline in the French Navy.

At Brest, the quartermasters and seamen of the sea-going torpedo-boats "Trombe," "Simoun," "Audacieux," and "Siroco," have demanded through the local newspapers to be relieved and sent to other vessels. The cause of discontent appears to be that these torpedo-boats, which have hitherto been independent commands, have been placed under the orders of the capitaine de frégate in command of the *défense mobile*, who has given orders for the general employment of their crews, which has somewhat restricted their liberty.

The second incident is more serious. It is stated that when the cruiser "Jurien de la Gravière" was about to leave Lorient for the West Indies, a ministerial despatch arrived, postponing her departure, and directing that six days' leave by watches was to be given to the crew. The captain was also ordered to proceed to Paris with the defaulters' book, and report himself at the Ministry of Marine. It is said that these orders are in consequence of a complaint made direct to the Minister of Marine by a certain number of the crew, which was not forwarded through the usual channel, and the fact that it has been accepted, and the men's request apparently granted, seems an extraordinary course for the Minister of Marine to pursue, which cannot fail to have ill effects on the general discipline of the Fleet.

The Minister of Marine has also completely given in to the stokers on strike at the different dockyards, even to the extent of complying with the demand made for the removal of M. Pregent, Controller-General at Toulon, whose only fault was that he had done his duty in acting up to the Regulations, and reducing the amount of extra pay hitherto illegally given to these men. It is true that the stokers, who refused to embark on board the "Sully" have been disciplinarily punished; but the action of the Minister in granting for the future the extra pay, under the menaces of the men to bring about a general strike in the dockyards if it was withheld, is considered most ill-judged and prejudicial to the best interests of the Navy. It is believed that a remedy for the present unsatisfactory state of things will have to be found in placing all the workmen under naval discipline, a step which M. Pelletan's predecessor, M. de Lanessan, had seriously contemplated as a reply to a previous threat on the part of the workmen of a general strike.

The Naval Forces in Commission in 1904.—The proposals for the constitutions of the different squadrons during the coming year have now been made known, and, if carried out, will result in a considerable accession of strength. The Squadron of the North, the Squadron in China, and the Atlantic Naval Division, are all to be strengthened by new and modern ships, which will take the place of obsolete ones.

The Mediterranean battle-ship Active Squadron, the most important of all, is to lose one of its battle-ships, the "Bouvet," which is to be transferred to the Squadron of the North, its place being taken by the new battle-ship "Suffren," now on her trials. The squadron will then consist of the first-class battle-ships "St. Louis," "Charlemagne," "Gaulois," "Iéna," and "Suffren"; but as this will leave one division of the squadron short of a unit, it is believed that the "Jauréguiberry" will be retained to make the sixth ship, although it is not so stated. The Armoured Cruiser Division will consist of three new vessels, all now under trial at Cherbourg, viz., the "Amiral-Aube," which will take the place of the "Pothuau" as flag-ship, and the "Kléber" and "Desaix." The "Amiral-Aube" is in every way a far superior ship to the "Pothuau," as she is nearly as large again, having a displacement of 10,014 tons, and engines developing 20,500-I.H.P., as against the 5,365 tons and 10,378-I.H.P. of the "Pothuau," and she is heavier armed, better protected, with a 2 knots greater speed, and carries 1,000 tons more coal. Although the "Kléber" and "Desaix," of 7,700 tons displacement, are both insufficiently armed and armoured, yet they are much superior to the two older ships, the "Chanzy" and "Latouche-Tréville," which they are to relieve, being 2 knots faster, and carrying 800 tons more coal.

The Reserve Squadron of the Mediterranean Fleet, reduced to a simple division, is to lose one of its first-class battle-ships, the "Carnot," which is to be transferred to the Squadron of the North. The division will consist of the first-class battle-ships "Brennus" and "Charles-Martel," with the first-class armoured cruiser "Pothuau," and is more a group of units, ready to replace other ships, when needed for any cause in the Active Squadron than a Reserve Division. With regard to the torpedo-boat destroyers, as the new ones are completed they will take the place in the squadrons of older vessels of the same class, which in their turn will be relegated to the *Défenses Mobiles* as *divisionaires*, in place of the now obsolete torpedo-avisos of the "Bombe" type, and torpilleurs de haute-mer.

In view of the organisation of the "Home Fleet" in England, and the development of the German Fleet, it has become necessary to strengthen the Squadron of the North, which consists at present of three divisions, one of battle-ships, one of coast-defence ships, and the third of cruisers.

The First Division in reality only numbers two first-class battle-ships, the "Masséna" and the "Formidable," as the third ship, the second-class battle-ship "Dévastation," has not yet joined, and according to latest reports she will not join the squadron at all, but is to be placed in the Reserve as soon as her trials are over. The Second Division consists of the coast-defence ships "Bouvines," "Amiral-Tréhouart," and "Valmy." The Cruiser Division consists of the two armoured cruisers "Jeanne d'Arc" and "Dupuy de Lôme," with the first-class cruiser "Guichen." Of the whole squadron, only two units, the "Masséna" and "Jeanne d'Arc," are modern vessels. The "Formidable," although she has recently been reconstructed, and has good boilers, is for practical

purposes only a 16-knot ship, while nearly the whole of her secondary armament and her hull, except for the water-line belt, are unprotected. Of the three coast-defence ships one, the "Valmy," always makes bad weather of it at sea, and they all roll so heavily as to most materially impair the firing from their guns. Both for strategical and tactical reasons these ships should be kept in the Mediterranean. Of the three cruisers, the "Jeanne d'Arc" is the only one up to modern requirements; the "Dupuy de Lôme" has been in commission now for over eight years, and requires new boilers and a thorough repair; while the "Guichen," although a fine commerce-destroyer, is only lightly armed, with no protection for her guns; she is practically an 8,200-ton scouting or despatch vessel, but not a fighting one.

According to the Budget proposals for 1904, the "Formidable," "Dévastation," and "Valmy," will be placed in the Reserve, while the "Dupuy de Lôme" is to be paid off and placed in the dockyard hands for her much-needed overhaul and repair. The first division will then consist of the "Masséna," "Carnot," and "Bouvet," and will be homogeneous, as all three ships are practically sister-vessels. The second division will consist of the "Bouvines," "Amiral-Tréhouart," and the new second-class battle-ship "Henri IV.," which last-named ship takes the place of the "Valmy." The Cruiser Division is to consist of the "Jeanne d'Arc," "Marseillaise," and "Gloire," all three quite new ships, able to maintain easily a speed of 20 knots, with an extreme speed of 21.

The *Yacht* asks whether the three coast-defence ships, considering their many weak points, do not rather handicap the Squadron of the North instead of strengthening it, and is of opinion that if the Minister of Marine is compelled to economise, that here is his opportunity. It considers that the proper solution would be to suppress this coast-defence division, and to keep the Battle-ship and Cruiser Divisions, which would constitute a really powerful squadron, fully manned all the year, instead of, as now, having three heterogeneous divisions, only partly manned for seven months out of the twelve.

The Squadron in the Far East is also to be strengthened, as, in addition to the new first-class armoured cruiser "Montcalm," already on the station, a sister-ship, the "Amiral-Gueydon," and a slightly larger vessel, the "Sully," are to be sent out, forming a fine homogeneous division of cruisers, with a speed of from 21 to 21·5 knots, in addition to which all three ships are exceptionally economical in their coal consumption; the protected first-class cruiser "Châteaurenault," a sister-ship to the "Guichen," also remains attached to the Squadron, with a flotilla of gun-boats, while in the Reserve at Saigon will be the second-class battle-ship "Redoutable," and probably also the second-class cruisers "Pascal" and "Bugeaud."

The Pacific Naval Division will remain constituted as at present, viz., the second-class cruiser "Protet"; the transport-avisos "Durance" and "Meurthe"; and the first-class gun-boat "Zélée." There are no changes either in the East Indian Division, which consists only of the third-class cruiser "Infernet" and the "Capricorne" gun-boat. At present there are no good ships to spare for strengthening these two stations.

On the other hand, the Atlantic Naval Division is strengthened by the substitution of the new armoured cruiser "Dupleix" for the now obsolete "Tage" as flag-ship, while the first-class protected cruiser "Jurien de la Gravière" takes the place of the third-class cruiser "D'Estrées."

Steam Trials and Dockyard Notes.—The new first-class armoured cruiser "Marseillaise" has successfully completed her official coal consumption trials at Brest. The conditions imposed upon the contractors were that on a six hours' run with natural draught, the engines developing 14,000-I.H.P., the coal consumption should not exceed 800 gr. (1·6 lbs.) at the highest. The results of the trial were as follows:—I.H.P. developed, 14,593; corresponding mean speed, 19·6 knots; coal consumption per square metre of grate per hour, 93 kg. (204·97 lbs.); consumption per I.H.P. per hour, 700 gr. (1·4 lbs.). The working of the Belleville boilers of the ship, which are fitted with economisers, was completely satisfactory. At two previous trials for 24 hours, with the engines developing 1,800-I.H.P., and 10,000-I.H.P., the coal consumption per H.P. per hour was 595 gr. (1·19 lbs.) and 654 gr. (1·3 lbs.) respectively. The ship has shown herself to have a radius of action a seventh greater than the contract called for.

The armoured cruiser "Dupuy de Lôme," which is to be relieved in the Squadron of the North by the "Marseillaise," is to be refitted at Brest dockyard; she is to have Normand-Sigaudy small-tube water-tube boilers in place of her old locomotive boilers, and as the new boilers will weigh considerably less than her old ones, it is calculated that her coal supply will be increased by at least 250 tons, and her present radius of action of 13,000 miles at 10 knots should be increased by nearly a fourth.

The work of completing the new armoured cruiser "Léon Gambetta" is being pushed on, and men are working overtime on her; the turrets for her guns are now being fitted.

The new first-class cruiser "Jurien de la Gravière" left Lorient on the 24th ult. for the West Indies. She is the first ship for over twenty years which has been built, carried out all her trials, and been commissioned at this port.

The new torpedo-boat destroyer "Pistolet" has commenced her trials at Lorient; at her last run she made a mean of 27·6 knots for four hours, which is 1·6 knots over the contract. The new armoured cruiser "Dupleix," at Rochefort, has also commenced her trials; at a recent run of six hours' duration, using 11 only of her 24 Belleville boilers, the engines developing 3,921-I.H.P., gave her a speed of 13·5 knots; the coal consumption per square metre of grate surface per hour was 58 kg. (127·83 lbs.), which was considered very satisfactory.

The armoured cruiser "Sully" has been continuing her trials at Toulon, and has made some satisfactory runs, using combined petroleum and coal as fuel, and she has also successfully carried out her gun trials.

The now, comparatively speaking, obsolete first-class battle-ship "Amiral-Duperré," at present in the Reserve at Brest, is to be fitted out to take the place of the "Couronne" as gunnery training-ship at Toulon. The authorities at Brest have been directed to send in an estimate and plans for making the necessary changes in the ship. In the opinion of some experts, the proposal is not looked upon with favour, as it is feared that while the fighting qualities of the ship will be impaired she will not make a satisfactory school-ship.

The attempt to float the torpedo-boat destroyer "Espignole," which struck on a rock during manœuvres off the Hyères Islands, and sank in 21 fathoms, some five months ago, has been definitely given up. The last attempt to raise her was made on the 3rd inst., when the lifting cables carried away. Her guns and most of her stores have, however, been saved. The causes of the failure to raise the vessel are due to the great depth at which she is lying, making it very

difficult for the divers to work, while bad weather has also materially interfered with the work.—*Le Yacht, Le Temps,* and *Le Petit Var.*

RUSSIA.—The following are the principal appointments and promotions which have been made: Vice-Admirals—Hiltebrand from the Black Sea Fleet Division to be Senior Officer of the Baltic Fleet; Skrydlov to be Commander-in-Chief of Black Sea Fleet and Ports; Alexeieff, A.D.C., Commander-in-Chief at Kwan-tung and in the Pacific, to be Admiral. Rear-Admirals—Ditter, the Director of the Naval Cadet Corps and Chukhuine, to be Vice-Admirals. Captains—Zagorianski, of the 13th Seamen's Division and coast-defence ship "General-Admiral Apraxine"; Kisel, of the 28th Seamen's Division and battle-ship "Georgii Pobiedonosets"; Vishnevetski, Commander Guard Division and first-class cruiser "Svietlana," Nilov, retaining the former post; Beklernish, of the 19th Seamen's Division, to be Rear-Admirals.

New Ships and Dockyard Notes.—The launches for last year included: the battle-ship "Orel," from the New Admiralty Yard at St. Petersburg; the battle-ship "Kniaz Suvarov," from the Baltic Works, Lazarevski Yard, at Sevastopol; the armoured cruiser "Ochakov," and the transport "Kamchatka," from the New Admiralty Yard (St. Petersburg); and training-ship "Okean," from Howaldt Yard, at Kiel.

The ships laid down were: the battle-ship "Slava" (Baltic Yard); the cruisers "Izumrud" and "Zemchug" (Neva Yard); cruiser "Oleg" (New Admiralty Yard, St. Petersburg); and the third-class cruiser "Almaz" (Baltic Works).

At the New Admiralty Yard at St. Petersburg, on the 16th June, took place the *Zakladka*, or ceremony of laying down the torpedo depôt-ship "Volga," and subsequently at the Baltic Works, the launch of the third-class cruiser "Almaz." It is hoped the latter will be completed for sea by the autumn of this year, and sent to the Pacific. She was laid down in September of last year in the presence of the Tsar and the Queen of the Hellenes. Her dimensions are as follows:—Length between perpendiculars, 325 feet; total length, 363 feet; extreme beam, 43 feet 6 inches; draught forward, 14 feet 6 inches; aft, 17 feet 6 inches; amidships, 16 feet, with a displacement of 3,285 tons; her coal supply will be 560 tons. She has twin-screw triple-expansion engines, which are to develop 7,500-I.H.P., giving a speed of 19 knots; they have been designed at the Works, and, together with the deck and auxiliary engines, have been constructed there; she will carry in two stokeholds 16 Belleville boilers, which are also being constructed by the Baltic Works. Her armament will consist of six 4·7-inch and eight 3-pounder Q.F. guns. She has a double bottom, and 44 water-tight compartments. About 72 per cent. of the whole work of completion has so far been done.

It is announced that the Minister of Marine has given orders to commence the construction of two battle-ships of 12,000 tons displacement each, for the Black Sea Fleet. One of these will be built at the Nicolaieff Government Yard, and the other at the Sevastopol. The engines will be ordered of private firms. There will also be ordered of private firms for the Black Sea Fleet three first-class torpedo-boats of the type of those just completed at Nicolaieff, viz., the "Zavietny" and "Zavidny."

The first-class cruiser "Admiral Kornilov" has been thoroughly overhauled at Port Alexander III., and is being commissioned this year with the Training Squadron for the Naval Cadet Corps.

The coast-defence ironclad "Admiral Grieg" is in process of being thoroughly reconstructed. Her boilers will be removed and replaced by new ones, and the casing of her three turrets renovated. All her armour-belt will be taken off so as to place fresh packing under the armour and new bolts. It is hoped she will be out of dock by the autumn. The "Charodyeika," a sister-ship, was similarly re-constructed two years back.

The report on the first-class cruiser "Bogatyr," made before her departure for the East, by Inspector of Construction Titov, has been published. There are four ships of similar type under construction, the "Oleg" and "Vitiaz," at the New Admiralty Yard, St. Petersburg, and the "Kagul" at Nicolaieff, on the Black Sea, and the "Ochakov" at Sevastopol; hence his report is of considerable interest. It is on the whole, satisfactory, especially as regards ventilation. As for the bulkheads, their stability was tested by the flooding of two stokeholds under the pressure required, and with entirely satisfactory results, both as regards being water-tight, the strength of the bulkheads, and the power of the water-ejecting turbines. He, however, considers a serious defect to be the absence of inner broadside sheathing where the crew are berthed. This will be provided in the shape of thin iron shields covered with elastic cork towards the ship's side in the case of the four ships now building. The "Oleg," which is to be launched this autumn, will have the two turrets for her 6-inch guns of more solid construction than those of the "Bogatyr," as also the conning-tower. Her steering gear will also differ from the "Bogatyr," which has a steering-engine on the Brown system; the "Oleg" is to have two—one steam, the other electric—and the gear for both will be in direct communication with the conning-tower. The engines and boilers will be constructed by the Franco-Russian Works, after the design of the German Vulcan Company. Her triple-expansion engines are to develop a total power of 19,500-I.H.P., giving a speed of 23 knots. The boilers are of the Normand-Sigaudy water-tube pattern, 16 in number. The total coal capacity will be 1,100 tons, which, at a speed of 10 knots, will enable her to steam some 5,000 miles. The ordinary coal supply is 720 tons, but a total of 1,430 can be carried. Most of this will be stowed on the armoured deck extending along the boiler compartments. She will have two submerged torpedo-tubes with traverses, placed ahead of the forward boiler compartment, but no above-water torpedo-tubes, as it has been decided not to have such tubes in portions unprotected by armour, and she is furnished with complete torpedo nettings. There will be cofferdams extending two-thirds of the length of the vessel. There is scarcely any wood used in her construction, and there is no outer wooden sheathing. Some 600 men are at work on the vessel.

The "Kagul," a sister-ship, was launched on the 2nd June, and will be one of the most powerful cruisers in the Black Sea Fleet. Her length over all is 439 feet 7½ inches, or between perpendiculars 433 feet 1 inch; beam, 54 feet 5½ inches; with a displacement of 6,675 tons. The engines are to develop 19,500-I.H.P., giving a speed of 23 knots. The armour-deck runs her whole length, and is 1¾ inches thick in the centre and 2¾ inches at the sloping sides. Her guns will be carried in two turrets and four casemates, and will consist of twelve 6-inch guns of 45 calibres, twelve 3-inch guns of 50 calibres, and six 1·81-inch (46-mm.) guns. Her two torpedo-tubes will be submerged. The material used in her construction has been produced entirely in Russia.

The plan has been adopted on board the cruiser "Boyarin" of issuing to the officers a small "memorandum," containing specifications of the hull and engines, plans of the internal arrangement, a description of the

ventilating and water-ejecting systems, the capacity of the holds and dimensions of various compartments, a plan and short description of the boilers, the gun and torpedo armament, spars, and the like. It is considered that the general adoption of such memoranda would be of much service to officers newly joining ships.

It has been discovered that the use of electricity of high power in the Russian war-ships seriously affects the steel of which they are built, and more particularly in the case of the boilers, is found to shorten the term of their use. The Russian Admiralty has, therefore, ordered that in one of the seven torpedo-boat destroyers building for service in the Far East, arrangements shall be made for the exclusive use on the voyage out of oil lighting. It will then be seen by comparing the other boats with her what has been the precise effect in them of use of the electric lighting.

Steam Trials.—The new first-class battle-ship "Csarevitch," which has been built at La Seyne, near Toulon, in her recent trials made a maximum speed of 18·47 knots, the average for six runs over the measured mile being 18·25 knots. The number of revolutions of her engines per minute was 97. Later, with the same number of revolutions, she maintained the speed of 18·47 knots during a 12 hours' run, her engines developing 15,800-H.P. only, their full capacity being 16,700-H.P. The contract rate of speed was 18 knots. In her final trials, on 23rd July, the "Csarevitch," in a 12 hours' run, made at first 18·78 knots, and finished up at a speed of over 19 knots, thus surpassing all existing battle-ships in speed and endurance.

The new transport "Okean," which was built at the Howaldt Yard, Kiel, was in April subjected to her official steam trials at Port Alexander III. The result of four runs on the measured mile gave a mean speed of 18·6 knots, with an average of 100 revolutions of both engines. The pressure of steam in the boilers was maintained at about 240 lbs. to the square inch. Each of the trials lasted six hours, under the presidency of Rear-Admiral Radionov. She is to be used as a training-ship for engineers, artificers and stokers. There are four different types of boilers in her; Belleville, Niclausse, Schulz, and Yarrow, all of which were working during the trials. She has since embarked 4,000 tons of coal, and 400 men for instruction, and proceeded to the Far East.

The new first-class cruiser "Aurora" has also undergone her machinery trials successfully at Kronstadt, on 27th June. In four runs over the measured mile the rates of speed were respectively 18·7, 19·02, 18·97, and 19·2 knots, or an average of 18·97 knots for the four runs. The average number of revolutions of the engines was 134, with a working steam pressure of 180 lbs. The steam pressure in the boilers was maintained at 235 lbs. to the square inch.

Armoured versus Unarmoured Ships.—An interesting lecture was recently deliverel by Vice-Admiral Makarov, who designed the "Yermak," in the hall of the Admiralty Library, St. Petersburg, on the subject of "Armoured and Unarmoured Ships," the chief points of which are thus summarised :—"Though in some respects we are, perhaps, behind other nations, yet in the matter of ship-building we are, I may say, even in advance of them. . . . As long ago as 1894, I came forward with a proposal to build unarmoured ships, and from that time have not ceased to uphold that idea, bringing it forward in successive Minutes. I confess that nobody is of the same opinion as myself, although some tendency in that direction has begun to show itself. When there arose in France what is called the New School, laying down the reasonableness of constructing ships of war of small displacement, there were stormy debates between the advocates of the old and new views, of which the echoes are still heard. I do not give

up heavy artillery, but contend that guns should be placed on the upper deck. An unarmoured ship such as I should select as the type of a man-of-war should have 3,000 tons displacement. In my present paper I deal mainly with the tactical aspect of such ships. . . . Taking, for instance, one ironclad of 9,000 tons, and three unarmoured ships of 3,000, we find that the cost in each case is the same, the armament the same, the speed the same, the radius of action the same; but on the contrary the ironclad carries a dead weight in armour of 1,800 tons. The question is: can the one armoured ship defeat three ships unarmoured, but carrying a powerful armament. She may sink one, thus reducing the enemy's strength by one-third; but could she sink the three before being herself sunk? Experience gives no definite reply, but the British battle-ship 'Victoria,' though ably commanded, could not withstand the shock of a touch of cold steel delivered by a vessel moving only at the speed of six knots, and it is improbable that the quicker-moving and explosive shell and torpedo would be less effective; the fully-armoured caisson representing a section of the French battle-ship 'Henri IV.' did not survive the explosion under it of a single torpedo charge. The British Admiralty does not let all be known about the experiments with the 'Belleisle,' but what is known is not favourable to the use of armour. Armour only wards off indirect striking or ricochet; but if struck full by a projectile of the proper calibre, the thickest will be penetrated. The vessels I advocate should be quite unprotected and carry their guns on deck. A light protection only delayed the shell sufficiently to cause it to explode within the protected vessel. Enough use is not made of torpedoes because too much is expected of them. In the case of gun-fire 20 to 25 per cent. of hits is considered satisfactory, and it should be the case with torpedoes." The Admiral does not share the French enthusiasm about submarine boats, as divers were agreed that nothing could be seen distinctly under water at a distance of more than 20 yards. The lecturer was loudly applauded by his audience of distinguished naval and military officers.

Arctic Exploration.—Lieutenant Matisen has left for Irkutsk and will, later, proceed to Yakutsk, and from there make his way to the shore of the Frozen Ocean to Tiksi Bay, near the mouth of the River Lena, to the assistance of the yacht "Zaria." A party has left to go in search of and afford help to the head of the expedition, Baron Toll, with 6 teams of dogs, under Engineer Brunsnev; and Lieutenant Kolchak, a member of the recently returned Polar expedition, has started with the same object, with part of the crew of the "Zaria." If he does not find Baron Toll in New Siberia, he will proceed to Bennet Island over the ice, which the Baron intended to reach and winter in. The zoologist Biruli, who has returned, reports that the ice between New Siberia and Bennet Island broke in July, and by then the Baron would, no doubt, have reached the Island, and would wait to be picked up by the vessel. This, in spite of Matisen's best efforts, the "Zaria" was unable to do on account of the ice.

Latest Stations of Ships.

Pacific.

Talienwan.

Battle-ships—"Petropavlovsk," "Poltava," "Sevastopol," "Retvizan," and "Peresviet."
First-class cruisers—"Rurik," "Pallada," and "Variag."
Third-class cruiser—"Novik."
Gun-vessel—"Otvajny."
Transports—"Amur," "Yenisei."

Port Arthur.
First-class cruisers—"Rossia," "Gromoboi," "Askold," "Diana."
Second-class cruiser—"Zabiaka."
Gun-vessels—"Bobr," "Giliak."
Torpedo-cruisers—"Vsadnik," "Haĭdamak."
Torpedo-vessels—"Bezshumny," "Bezposhadny," "Bditelny," "Bezshashny," "Boevoi."

Vladivostok.
Gun-vessel—"Mandjur."

Colombo.
Battle-ship—"Pobieda."

Hong-Kong.
First-class cruiser—"Bogatyr."
Torpedo-vessels—"Burny," "Boiki."

Shanghai.
Third-class cruisers—"Boyarin," "Razboinik."
Torpedo-vessels—"Vnimatelny," "Vnushitelny," "Vynoslivy" "Vlastny," "Grozovoi."

Chemulpo.
Gun-vessel—"Gremiaschi."

Niuchwang.
Gun-vessel—"Sivuch."

Hankow.
Gun-vessel—"Koreëts."

MEDITERRANEAN.

Battle-ship—"Imperator Nikolai I."
Gun-vessels—"Chernomorets," "Khrabry."
Torpedo-cruiser—"Abrek."
Torpedo-boats—Nos. 119, 120.

En Route to Pacific.—Suva (Fiji).
Second-class Cruiser—"Djigit."

Frozen Ocean, Alexandrovsk.
Transport—"Bakan."

Kronstädtski Viéstnik.

UNITED STATES.—*New Prizes for Expert Heavy-gun Shooting.*—In addition to the extra pay of gun captains and gun pointers, the Navy Department intends to award, from funds now available for that purpose, two distinct classes to expert gun-crews.

1. Each ship in the Service will be awarded "ship's prize" for the best gun-crew (or the best turret) of each distinct type of gun on board, provided, however, the score made by the best crew or turret comes up to certain standards (for first, second and third prizes) in hits per minute, to be established by the Secretary of the Navy after the next annual record practice. Thus the best gun-crew (or turret) of each type on board may win either a first, second or third prize; but in no case except when the scores of a crew are a tie will more than one ship prize be given for each type of gun.

2. First, second and third "Navy prizes" will be awarded to a number of the gun-crews (or turrets) making the highest score at each distinct type of gun that fires at the annual record practice of the year. Thus there will be a distinct prize for the 13-inch turrets of the "Indiana" type, "Alabama" type, etc., as it is not at present possible

to fire the guns of the former as fast as those of the latter. Similarly there will be distinct prizes for modern 6-inch guns, 6-inch guns on gravity return mounts, 5-inch, 4-inch, 3-inch guns, etc. Semi-automatic guns will also be considered a separate type.

All prizes will be awarded by the Bureau of Navigation, after the receipt of the scores of the annual record practice from each station.

In all cases the value of both ship and Navy prizes for the various types of guns will depend upon the number of guns competing, multiplied by the number of men in a crew, actually stationed at the guns, as allowed by the drill book. For reasons given it would not be advisable to attempt to fix the number of first, second and third prizes until after an examination of the records made at the next annual record practice; but in general terms it may be stated that the amount of money, particularly that for the first prizes, will be worth competing for—not to mention the honour of winning a Navy prize.

For all guns in turrets, both the ship prize and the Navy prize will be assigned to the winning turret; the record made being the average of the records of the guns (where there is more than one gun in the turret). For the purpose of assigning prizes, all 8-inch turrets superimposed upon 13-inch turrets will be considered as separate turrets.

Turret captains and gun captains are each to receive two shares in the distribution of prizes to one for each man of the crew. In case any member of the crew is absent from his station at the annual record practice through sickness, or through no fault of his own, he shall receive his share. In case a substitute is employed he shall be considered as an extra man and paid a proportional share of all prizes won. If more men are employed to increase the speed of loading or for any other purpose they shall be paid their proportion of prizes. Vacancies in a gun-crew may be filled from any gun-crew; but, men in excess of the crew regularly allowed a gun by the drill book may be employed in target practice only if such men are supernumeraries, and are regularly assigned to that gun. Ties will be settled by the greatest number of shots. In case of a tie in both shots fired, and hits made, each crew will receive a prize. Prizes will be paid in cash with appropriate ceremonies with the ship's company mustered on the quarter-deck.

The final merit in "points per gun" of all ships competing will be published to the Service, on receipt of the records. These final merits will be calculated on the basis of the greatest rapidity of hitting exhibited by the best crew in the Service of each type of gun. The vessel having the highest final merit in each of the three classes of vessels will be presented with a suitably inscribed trophy, which she will carry until the next annual record practice, when it will be surrendered to the vessel in the same class that made the highest final merit at the record practice of that year, except in the case where the vessel carrying it again makes the best record in her class. In the case of one of these trophies being transferred from one vessel to another while in company in the same port, it shall be done with appropriate ceremonies, and it shall be received by the winning vessel with all hands at muster on the quarter-deck; and in case the trophy is sent to a vessel that is not in company with the winner of the preceding year, it shall be received in the same manner.

The following Executive Order is published in G.O. No. 137, N.D., 25th July :—

"White House, July 25th, 1903.

Enlisted men of the Navy after having qualified as gun pointers, according to standards of marksmanship and rules that may be prescribed

from time to time by the Secretary of the Navy, and who are regularly detailed as gun pointers by the commanding officer of a vessel, shall receive monthly, in addition to the pay of their respective ratings, extra pay as follows :—

Heavy-gun pointers, first class, $10; second class, $6; for the class of guns comprising those of 8-inch calibre or larger.

Intermediate-gun pointer, first class, $8; second class, $4; for the class of guns comprising those of 4-inch to 7-inch calibre, inclusive.

Secondary-gun pointers, first class, $4; second class, $2; for the class of guns comprising those of 1-pounder to 3-inch calibre, inclusive.

Extra pay shall be allowed a qualified gun pointer during not less than two years from and after the date of his qualifying, but only while he is regularly detailed as a gun pointer at a gun of the class at which he qualified.

The following ratings and rates of pay per month for the same are hereby established in the naval service :—

Chief turret captain, holding acting appointment as such, $60; holding a permanent appointment as such, $70.

Turret captain, first class, $50.

Enlisted men of the Navy regularly detailed by the commanding officer of a vessel as gun captains, except at secondary battery guns, shall receive, in addition to the pay of their respective ratings, $5 per month, which, in the case of men holding certificates as gun captains or of graduation from the gun captain class, petty officers' school, shall include the $2 per month to which such certificates entitle them.

This order shall go into effect Oct. 1, 1903.

THEODORE ROOSEVELT."

From instructions to be observed in carrying out this order, we extract what follows:—

The standards of marksmanship will be announced subject to change yearly.

A gun pointer's "gunnery record" will be his sole certificate of qualification.

A gun pointer shall receive extra pay as such only during the time that he is regularly detailed and for a gun of the class at which he is detailed.

Although the standards of marksmanship are subject to change yearly, a pointer that qualifies at any annual record practice is entitled to the corresponding extra pay for all the time during the ensuing period of two years that he is regularly detailed as a gun pointer at a gun of the class at which he qualified at that practice. A qualified gun pointer re-enlisting for four years within four months of his discharge, and regularly stationed as a gun pointer at a gun of a class at which he was qualified at the time of his discharge, shall be entitled to the corresponding extra pay during the unexpired portion of the period of two years from the date of qualifying—the interval of time between the date of his discharge and re-enlistment to be included in the period of two years.

For each 10-inch, 12-inch and 13-inch turret, and for each combination of superimposed turrets, one chief turret captain is allowed; but a turret captain, first class, may be assigned to any such turret for which no chief turret captain is available. For each 8-inch turret (not superimposed) one turret captain, first class, is allowed.

To fill these ratings, wholly or in part, commanding officers will select candidates that appear to possess the necessary qualifications from

gunner's mates, seamen gunners, men holding the rate of gun captain or certificate of graduation from the petty officers' school, gun captain class, and other intelligent men—not alone of the seamen branch—of mechanical bent and good promise as leading men. The names of these men shall be sent to the squadron commander, who will order their examination before a board of not less than three officers, the majority to be turret officers if practicable, to be appointed by him, none of whom shall be taken from the ship to which the candidates belong. Commanding officers shall nominate at least two candidates for each vacancy as turret captain, in order that the examination may be competitive.

No chief petty officer shall be rated a turret captain, first class, against his will. Permanent appointments and advancement will be governed by the same regulations that apply to other petty officer ratings.

When the commanding officer revokes the detail of a man as a gun captain or gun pointer, he shall, in writing, direct the pay officer to discontinue the corresponding extra pay.—*Army and Navy Journal.*

Combined Manœuvres of 1903.—The revision for 1903 of the rules for the Army and Navy manœuvres of 1902, prepared by Major F. E. Harrison, A.C., U.S.A., and Lieut. Mark L. Bristol, U.S.N., has been published in pamphlet form for the direction of officers taking part in the coming manœuvres. The problem is as follows :—

Blue's two squadrons of battle-ships being located at Guantanamo and Culebra, are covered by a superior allied fleet of Red and Black, when the political situation in the United States is suddenly strained to rupture. A strong Red fleet consisting of———vessels (including torpedo-boats) sails at 6 p.m. 23rd August, 1903, from the port of "X," heading south, with the following sealed orders : "The Red fleet at 'X' will proceed at once to Portland, Me., seize and hold same as a base of operations." Information of the sailing of the Red fleet from "X" is received at Portland six hours after its departure. Time required Red fleet to reach Portland is fifty-four hours.

It will be assumed that prior to the sailing of the Red fleet from "X," no channels are mined or obstructed; thereafter all enterprises sanctioned by International law are permitted. It is desirable that the operations of the fleet should include all channels of approach to Portland, and embrace a reconnaissance in force; an attempt to destroy mine fields; a day attack, a night attack, and if practicable, the forcing of a passage. Preparations will be made to resist attacks on forts by landing parties. All forts in the Artillery District of Portland (Forts Williams, Preble, McKinley, Scammel, Levett, and fortifications on Cow Island) will be mobilised on a war basis, allowing two reliefs of the Artillerymen. During the period of hostilities, the conditions are to approach those of war as closely as possible. In undertaking these operations the controlling idea should be to test the training of the personnel, and the efficiency of the material, and it is of paramount important that this idea be not lost sight of.

The period of hostilities shall be from midnight 25th August to noon 29th August. The period from midnight 23rd August to midnight 25th August shall be known as the period of preparation. The attack will consist of ships in accordance with the following list, which is subject to revision :—

Battle-ships, A—"Kearsarge," "Alabama," "Illinois," "Massachusetts," "Indiana," "Texas."

Cruisers, C—"Olympia," "Baltimore."

Gun-boats, E—"Mayflower," "Dolphin," "Chesapeake," "Newport," "Scorpion."

Training-ships—"Hartford," "Essex," "Monongahela."

Unprotected cruisers, D—"Prairie," "Yankee," "Topeka," "Panther."

Destroyers, T—"Decatur," and nine others same class.

Supply vessels and colliers—"Culgoa," "Cæsar," "Hannibal," "Sterling," "Lebanon," "Marcellus," "Leonidas," "Brutus."

Tenders and tugs—"Peoria," "Nina," "Potomac."

Note.—The letters of designation used opposite the names have the following meaning: A, battle-ship; C, protected cruiser; D, unprotected cruiser; E, gun-boat; T, torpedo-boat destroyer.

There will be required eight Army and twenty-two Navy umpires; ten Navy and twenty-two Army observers. The Army observers and Navy umpires will assemble at Rockland, Me., at noon, 24th August. The Navy observers and Army umpires by 9 a.m., 24th August in Portland. Such naval militia as may be assigned to the ships will embark at Rockland, Me., noon, 24th August. The umpires, observers, and naval militia contingents will, at the close of the manœuvres, be distributed to convenient points in the discretion of the commander-in-chief of the naval forces.—*Army and Navy Journal.*

Run of the "Kearsarge" across the Atlantic.—

"U.S.S. 'Kearsarge,' 1st rate,

"Bar Harbour, Me., 27th July, 1903.

"SIR,—I have the honour to report that this vessel arrived here yesterday afternoon, having left Portsmouth, England, on Friday, 27th July, the squadron leaving the dockyard in column, with Admiral Cotton on board, this ship leading. After getting outside the forts, Admiral Cotton transferred his flag to the Chicago, and this vessel proceeded to the United States in obedience to her telegraphic orders for full speed under natural draught during the trip. The departure was taken from the Needles at 1.30 p.m., Greenwich time. From the beginning to the end of our journey we encountered head winds, head seas, and head currents, and were further handicapped by a gale, and later by icebergs and a dense fog while in their neighbourhood.

"The total distance to run from the Needles to Mount Desert Rock was 2,885 miles. Mount Desert Rock was reached in the midst of a dense fog at 12.45 p.m., Sunday, the 26th inst., thus making the actual running time, allowing for the difference in longitude, 9 days 4½ hours. This gave an average speed of 13·1 knots per hour for the total run. Had she been going to the eastward, with wind, sea, and current, instead of to the westward, she would undoubtedly have averaged 14 knots, for the average revolutions per hour of the engines would have given her in still water 13·6 knots per hour. The head wind varied from a force of three to six every day except two, and on one day, that of the gale, the force was estimated at eight. During this gale green seas washed over the forward 8-inch turret, when it became necessary to slow down, although the engines were behaving beautifully and also the ship herself. This reduced speed was maintained for four hours. Shortly after starting, on the first day out, from 1.30 to 2.10 p.m., the port engine was slowed for a hot bearing. In the fog, and among the icebergs above referred to, the ship was slowed to ten knots for 10½ hours. The first berg, quite a large one, was sighted about five o'clock in the afternoon on the 23rd inst. Fortunately at that time the weather was quite clear, and I carefully noted the weather temperature as we

approached. When within two miles of the iceberg the temperature dropped 9 degrees. At six o'clock this iceberg was abeam, distant about one mile to the southward, Lat. 42 degrees, 48 min. N., Long., 48 degrees, 06 min. W. Shortly after a dense fog set in and continued all through the berg, and as the changes of the water temperature showed that we were passing the vicinity of ice several times in the night, I deemed it necessary for the safety of the ship to slow down to 10 knots, as the fog was so dense that it was impossible for the greater part of the time to see a ship's length ahead. As soon as I felt that we were clear of ice regions I went ahead full speed, although the fog was as dense as ever. HEMPHILL."

—*Army and Navy Journal.*

MILITARY NOTES.

PRINCIPAL APPOINTMENTS AND PROMOTIONS FOR JULY, 1903.

Lieut.-Colonel and Brevet Colonel W. R. Le G. Anderson, C.B., I.A., Accountant-General, Military Department, Government of India, is granted the substantive rank of Colonel. Colonel C. H. Des Vœux, I.A., from a Colonel on the Staff to command a Second Class District in India, and is granted the temporary rank of Brigadier-General whilst so employed. Lieut.-Colonel and Brevet Colonel C. W. Muir, C.B., C.I.E., I.A., to be a Colonel on the Staff in India, and is granted the substantive rank of Colonel in the Army. Lieut.-Colonel and Brevet Colonel J. B. Woon, I.A., to be a Colonel on the Staff in India, and is granted the substantive rank of Colonel in the Army. Colonel F. W. Benson, C.B., from an A.A.G. at Head Quarters, to be Inspector-General of Remounts, with the rank of Major-General in the Army. Lieut.-Colonel E. R. Reid, D.S.O., Staff Paymaster, to be Chief Paymaster, with the substantive rank of Colonel in the Army.

HOME.—*Memorandum by the Director-General, Army Medical Service, on the Physical Unfitness of Men offering themselves for Enlistment in the Army.*—A deep interest has been aroused, both in the lay and medical press, by the writings of Sir Frederick Maurice and others, who have brought into prominence certain observations pointing to the fact that there is an alarming proportion of the young men of this country, more especially among the urban population, who are unfit for military service on account of defective physique.

The questions naturally arise as to whether this impeachment of the national health has a solid foundation in fact, and as to whether the condition is true of the population as a whole, or only of a certain section of it. The teaching of public health statistics would appear to show that progressive improvement of the national health has steadily followed the improved conditions of life which have been brought about by the advance of sanitary knowledge and its practical application. It has also been pointed out that athletic records are constantly being broken for all sorts of feats of strength, agility, and endurance, facts which would seem to indicate that the physique of the well-to-do classes, at least, is improving rather than deteriorating. It is nevertheless true, and the fact is a disturbing and disquieting one, that a very large proportion of the men who offer themselves for enlistment in the Army are found to be physically unfit for military service.

In an article on the National Health, which appeared in a recent number of the *Contemporary Review*, Sir Frederick Maurice states, that according to the best estimate he had been able to arrive at, it has been for many years the case that out of every five men who wished to enlist, and primarily offer themselves for enlistment, you will find that by the end of 2 years' service there are only two men remaining in the Army as effective soldiers. Of the men who offer themselves, some are rejected by the recruiting sergeant or recruiting officer; some by the examining medical officer; and some, though enlisted, are found after 3 months to be unlikely to develop into effective soldiers and are summarily discharged. According to General Maurice's experience, at the end of 2 years not more than 40 per cent. of the men who wished to become soldiers will be found serving; or in other words 60 per cent. of the men offering themselves are physically unfit to serve as soldiers. He points out that it is no good talking of conscription, or of any form of compulsory service, if we already have five men offering themselves for every two men who are fit for the work; no one has suggested that we should increase our Army in the proportion of two to five, *i.e.*, make it two and a half times as large as it is now. He then goes on to say, that no nation was ever yet for any long time great and free, when the army it put into the field no longer represented its own virility and manhood.

But the want of physique, thus shown to exist with regard to a large section of the community, is not only serious from its military aspect, it is serious also from its civil standpoint, for if these men are unfit for military service, what are they good for? As Lauder-Brunton says—"Poor in physique as they all are, and poor in mental capacity and power of application as many of them must be, what becomes of them? Many of them probably marry girls as weak as themselves, and have children, some of whom go to swell the lists of infant mortality, some to join the criminal classes, while others grow up more weak and incompetent than their parents." Enquiry is wanted, and it is vital for us to know the truth. Whether part of the physical deterioration is the result of unskilled labour flocking to the towns and there failing to find means for properly rearing a family, or whether it be on account of causes which are attackable, such as early marriages and the ignorance of mothers; the result is that the rising generation of all below the artisan class includes a vast number of men of a very low standard of health and physique.

Regarding the condition of the poorer classes, Mr. B. S. Rowntree read a paper at the British Medical Association Meeting, last August, on Poverty and Disease (*British Medical Journal*, 16th August, 1902). His observations refer to York, which has a population of about 75,000. In discussing the question he speaks of poverty under two heads, primary and secondary poverty. He defines "primary poverty" as the condition when the total earnings are insufficient to obtain the minimum necessaries for the maintenance of physical efficiency in the family. "Secondary poverty" is when the earnings would be sufficient if some part of them were not wasted. He found that in York 10 per cent. of the total population were living in "primary poverty," and that of this 10 per cent. just-one half (52 per cent.) is due to the fact that the chief wage earner, though in regular employment, has wages which are insufficient to maintain a family of moderate size in a state of physical efficiency. Eighteen per cent. of the population were living in a state of "secondary poverty," so that, adding the two classes together, 28 per cent. of the population in York are living in poverty. Some years ago Mr. Charles Booth estimated that in London 30 per cent. of the people were living in poverty. If then the same

conditions prevail in other large towns, it would appear that more than a quarter of our town populations are living at, or below, the poverty line. Now in England and Wales, at last year's census, 77 per cent. of the population was urban; namely, 25 millions out of 32½ millions; the town population having increased 15 per cent. during the last decade.

Every year a table is published, in the Army Medical Department Report, which classifies the recruits examined according to their previous occupations. The following is the table for 1900. It has not been selected for any special reason, but is given as an average example of our recruiting experience.

Occupation of recruits.	Number inspected.	Number rejected.	Ratio rejected per 1,000 inspected.	Proportion of each group in 1,000 recruits inspected.
1. Labourers, servants, husbandmen, etc.	52,022	15,025	288·82	616
2. Manufacturing artisans (cloth-workers, weavers, lace, makers, etc.)	11,971	3,478	290·54	142
3. Mechanics employed in occupations favourable to physical development (smiths, carpenters, masons, etc.)	11,201	2,923	260·96	133
4. Shopmen and clerks	5,950	1,826	306·89	70
5. Professional occupations, students etc.	827	220	266·02	10
6. Boys under 17 years of age ...	2,431	273	112·30	29
Total	84,402	23,745	281·33	1,000

Examination of a series of these annual tables shows that the proportion of the different classes remains remarkably constant from year to year, and the figures indicate that the bulk of our soldiers are drawn from the unskilled labour class, and consequently from the stratum of the population living in actual poverty or close to the poverty line. As might be expected, the highest ratio of rejection is shown for men who have been following indoor occupations.

The impairment of vigour and physique among the urban poor is easy to understand when we reflect that, in addition to their only being able to provide themselves with food insufficient in quantity and probably poor in quality, their poverty also usually entails unhealthy environment, *e.g.*, defective housing, overcrowding and insanitary surroundings. Add to this, the distress resulting from such causes as want of thrift, illness or death of the breadwinner, and alcoholic excess. Further, the physical deterioration caused by inherited or acquired disease must not be forgotten, and in illustration we need only instance the part played in this way by tubercle and syphilis.

In his Annual Report for 1902, just issued, the Inspector-General of Recruiting remarks that the one subject which causes anxiety in the future as regards recruiting is the gradual deterioration of the physique of the working classes from whom the bulk of the recruits must always be drawn, and, when it is remembered that recruiters are instructed not to submit for medical examination candidates for enlistment unless they are reasonably expected to be passed as fit, we cannot but be struck by the

percentage considered by the medical officers as unfit for the Service. In the reports from all the manufacturing districts, stress is invariably laid upon the number of men medically rejected for bad teeth, flat feet, and inferior physique.

Examining next the Army recruiting statistics in relation to the assertion that practically 60 per cent. of the men offering themselves for enlistment are unfit for military service, the following table has been compiled from information given in the Army Medical Department Reports, supplemented in some particulars by data obtained from the reports of the Inspector-General of Recruiting. A period of 10 years (1893-1902) has been selected, as of course, the greater the number of observations dealt with, the nearer will be our approximation to the truth.

Year.	1. Number of recruits inspected. (A.M.D. Report.)	2. Number rejected on inspection. (A.M.D. Report.)	3. Number rejected within 3 months after enlistment. (A.M.D. Report.)	4. Invalids discharged during the year under 2 years' service. (I.G.R. Report.)	5. Ratio per cent., column 2.	6. Ratio per cent., column 3.	7. Ratio per cent., column 4.
1893 ...	64,110	25,999	342	962	40·6	0·5	1·5
1894 ...	61,985	24,705	369	770	39·9	0·6	1·2
1895 ...	55,698	22,548	368	952	40·5	0·7	1·7
1896 ...	54,574	22,698	413	999	41·6	0·8	1·8
1897 ...	59,986	22,370	575	997	37·3	1·0	1·7
1898 ...	66,502	22,983*	387	983	34·6	0·6	1·5
1899 ...	68,087	22,071	433	1,003	32·4	0·6	1·5
1900 ...	84,402	23,105	640	1,514	27·4	0·8	1·8
1901 ...	76,750	21,522*	1,014	3,825	28·0	1·3	4·9
1902 ...	87,609	26,913*	1,308*	2,254	30·7	1·5	2·5
1893-1902.	679,703	234,914	5,849	14,259	34·6	0·9	2·1

* Does not include men enlisted in 1902 and discharged under 3 months' service in 1903.

It will be observed that during this decennial period the number of men medically examined for enlistment was 679,703, and of those 234,914 were rejected as medically unfit for service, giving a rejection ratio of 34·6 per cent.; of the men passed fit, 5,849 broke down within three months after enlistment, being at the rate of ·9 per cent. for this class; while 14,259, or 2·1 per cent. more, were discharged as invalids under 2 years' service. The smallness of the rate of the rejections within three months of enlistment, varying as will be observed, between ·5 and 1·5 per cent., speaks well, I think, for the thoroughness of the primary medical examination of recruits. But the rejection of one out of every three men examined by the recruiting medical officer points clearly to the poorness of the human material available for army purposes, as a writer in the *Lancet* puts it. Adding together the rates for the three classes of rejections referred to in the table, we find that 37·6 per cent. of the 679,703 men examined during the decennial period proved to be unfit for military service. This percentage of rejections does not, however, represent the whole extent of the physical unfitness existing among men wishing to become soldiers, and offering themselves for enlistment. The Inspector-General of Recruiting states in his report for 1902, that it must be borne in mind, when examining these totals, that they do not

represent anything like the total number of the rejections of candidates for enlistment into the Army. A large number of men are rejected by recruiting sergeants and recruiting officers, and such men in consequence are never medically inspected and do not appear in any returns. In the decennial period under consideration we have only been able to account for 37·6 per cent. of rejections from official statistics; but according to Sir Frederick Maurice's estimate, 60 per cent. of the men who offer themselves are unfit for service. This indicates that the number of men turned away by the recruiters themselves as unlikely to have any reasonable chance of passing the medical examination is an appallingly large one. As already stated no official record is kept of the number of men turned away; but there is reason to believe that the number is a large one, though whether it is sufficiently large to bring up the figures of the rejected to 60 per cent. we have no means of saying.

Examination of the statistics dealing with the causes of rejection by examining medical officers of men seeking enlistment, brings into prominence the fact that the majority are rejected on account of causes indicating poor physical development, namely, under chest measurement, under height, and under weight. Defective vision may also be regarded in many cases as resulting from developmental defect. The following table gives the statistics relating to the principal causes of rejection for the 12 years 1891-1902 :—

Causes of Rejection of Recruits on Inspection, with Ratio per 1,000. 1891-1902.

Cause of rejection.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
Under chest measurement.	93·03	95·90	108·55	110·27	126·38	139·64	89·44	73·88	65·84	59·84	49·88	56·72
Defective vision	40·35	42·35	41·51	42·90	39·88	40·72	41·15	42·64	41·99	36·42	35·84	39·23
Under weight ...	32·47	27·62	39·99	39·61	36·58	35·95	45·58	34·82	33·84	28·52	25·15	21·72
Under height ...	26·76	32·71	33·24	28·67	28·72	28·77	24·86	21·79	20·21	15·18	13·56	11·59
Imperfect constitution and debility.	18·40	9·87	9·47	5·00	3·57	4·44	4·45	5·49	5·82	4·94	3·36	3·91
Disease of veins	16·39	16·24	17·11	15·84	15·85	15·72	15·42	15·74	14·22	11·69	13·98	12·30
Disease of heart	16·06	13·87	17·74	19·62	20·71	18·76	17·67	17·26	15·69	13·15	16·74	17·33
Defects of lower extremities.	15·57	17·09	14·40	17·44	18·16	18·14	18·12	17·72	13·98	10·53	10·35	12·27
Varicocele ...	12·93	11·85	12·85	14·25	12·28	13·07	13·07	12·29	12·16	11·21	13·89	12·59
Flat feet... ...	11·04	9·83	12·45	14·71	13·16	17·81	16·79	12·24	12·31	9·02	11·66	12·44
Loss or decay of teeth.	10·88	14·56	15·33	16·26	17·95	19·75	24·16	26·34	25·29	20·02	26·70	49·26

It will be observed that bad teeth and flat feet, causes of rejection to which considerable importance was attached in General Maurice's paper in the *Contemporary Review*, occupy a comparatively low place in the list. But with regard to loss or decay of teeth, it must be pointed out that the numbers rejected on this account during the past 4 or 5 years have shown steady increase, until this cause of rejection has come to regularly occupy a high place on the list. Whether the increase in the rejections for bad teeth is an indication of increasing prevalence of physical unfitness is open to question, the increase may partly, at least, be due to the more common use of articles of food which readily undergo acid fermentation, and partly also to examining medical officers having gradually come to place a high value on soundness of teeth as a matter of the greatest importance in its relation to the maintenance of the physical efficiency

of the soldier on service. The main inference to be drawn from a consideration of the figures in the table is that the bulk of the rejections arise from causes indicating the operation of agencies antagonistic to healthy physical development.

It has already been stated that a large proportion of the population lives in towns, and this has been estimated at 77 per cent., or 25,000,000. Of this town population about 25 per cent. (probably at least 6,000,000), appear from trustworthy investigations, to be not only poor, but living in actual poverty, so as to be unable to rear their children under conditions favourable to health and physical fitness. The bulk of the men who seek enlistment belong to this section of the population, and a very large proportion (but probably not quite three out of five as stated by General Maurice) of the men who wish to join the Army prove physically unfit for military service. It is not claimed that the same proportion of poor material will be found generally distributed amongst all classes of the community. In an earlier paper in the *Contemporary Review*, on "Where to get men," General Maurice remarks regarding this point, "Of course, as yet, that stern and brutal fact of the two in five does not mean that of the whole male population of the kingdom there are only two out of five who are fit to bear arms."

In the concluding paragraphs of his paper on "National Health: A Soldier's Study," Sir Frederick Maurice states: "My object is to call upon the great profession, whose immediate concern is health, to give us the guidance and leading we need, and primarily it seems to me that we ought to call upon the Councils of the Colleges of Physicians and Surgeons, as *ex officio*, the great national boards of health to help and guide us." I should suppose that they have not at this moment, despite the census, sufficiently comprehensive data on which to pronounce, but if that be so, no Government could or would wish to resist an appeal from them for assistance in getting at the truth on the tremendous question which has been raised by the investigations of Mr. Rowntree: "Is it or is it not true that the whole labouring population of the land are at present living under conditions which make it impossible that they should rear the next generation to be sufficiently virile to supply more than two out of five men effective for the purposes of either peace or war."

The question at issue constitutes a problem by no means easy to solve. Were all classes of the community able to provide their offsprings with ample food and air space, a healthy race would be produced, and the proper material to fill the ranks of the Army would probably soon be obtained.

Information is wanted as to the causes of physical deficiency and as to the best available methods of remedying defects and improving the national health. Such an enquiry might fitly be undertaken by a commission as to the composition of which the advice of the Colleges of Physicians and Surgeons might be asked. As the matter is one of the utmost importance from the recruiting point of view, it is suggested that the Secretary of State might take the initiative in the matter of getting the opinion of the Councils of the Colleges with regard to—

a. The necessity for such an enquiry.
b. The ground to be covered by a commission if appointed.
c. Composition of commission.

W. TAYLOR, *Director-General,*
Army Medical Service.

WAR OFFICE,
2nd April, 1903.

AUSTRIA HUNGARY.—*Schemes of Military Reform in Hungary.*—It will be remembered that the fall of the recent Szell Ministry in Hungary was almost entirely due to the violent obstruction of the Opposition to a draft of the Military Law creating an increase to the annual enrolled contingent. With regard to this, it should be noted that in Austria-Hungary, in spite of the acknowledged principle of obligatory military service, a large number of young men in reality do not put in any time in the Regular Army, but are at once drafted into the Recruiting Reserve. The new Minister of the Honved Army is endeavouring to compromise matters by the introduction of a two years' period of service.

In Hungary more than 100,000 young men, thoroughly fit for service, are not actually enrolled. The number of recruits enrolled each year is at present 103,000, and if the two years' period of service were adopted in Hungary, that number would be increased by 71,900 men, in part to meet the decrease in the period of service, and on the other hand to provide the increase in the effective demanded by the Government. In addition, the Minister, in place of the 14,000 re-engaged non-commissioned officers at present serving, asks for 28,000 or 30,000, that is to say more than double, basing his demand on the example given by Germany at the time of the partial introduction of the two years' period of service. Finally, the three years' period of service with the colours in the Regular Army will be maintained in the cavalry, the horse artillery, and the Navy. The Minister, in the preamble to his scheme made before the Hungarian Parliamentary Commission, laid down that the transition from the present system to that of the two years' period of service (with the exceptions mentioned above) should extend over many years before the definite application of the new system.—*La France Militaire.*

GERMANY.—*Troops for the Lines of Communication.*—These troops are, in Germany, formed into a separate group, at the head of which there is a special Inspector, not under the Inspector-General of Engineers, but under the Chief of the General Staff, as these troops are regarded as special adjuncts of the General Staff. As regards Prussia, they consist at present of :—

a. A brigade of 3 railway regiments.

b. Three telegraph battalions.

c. A balloon battalion.

The training of the railway troops is carried out partly on a drill ground near Berlin, partly on the Juterbog military line of railway worked by them, and finally by means of special exercises. Their mission in war-time includes the construction and working of normal and narrow gauge railways, the building of permanent bridges, and the destruction of railway lines. But, in addition, there is also an experimental section of specially selected men engaged in studying automobiles. Special attention has been paid to the construction of bridges, and railway troops are now able to throw a bridge of 60 metres in length across rivers, etc. In addition to works of construction and repair, which are very thoroughly studied, the working of a railway line also receives great attention, thanks to the military line which is entirely worked by the *personnel* of the railway troops. This line, which runs from Berlin to Juterbog, is 70 kilometres long, and all the *personnel* take their turn on it for practical training. All the rolling stock of this line is kept up and repaired by the railway troops. This line has recently had some interesting experiments made on it in rapid concentration by electric traction. The speed at first reached 60 kilometres

an hour, and then 100, 120, and finally 140 successively, with a tension of 10,000 volts. The current producing apparatus and the rolling stock acted very well, but the line was found to be of too weak construction to permanently carry trains travelling at these rates of speed.

Each telegraph battalion is so organised as to have a permanent team detachment, consisting of 40 men and 50 horses. Their organisation is calculated on the basis of giving, in war-time, a half company to each of the German army corps, not including Bavaria, for duty in the first line, that is for the establishment, use, and repair of communications between fighting units either on the march or in quarters, and in certain cases even between the heads of columns and the cavalry scouting in advance. For this service the telegraph half companies use preferably the single cable, which can be readily laid down and taken up, and which requires no supports; but they have also a supply of uninsulated wire. This is principally used in the construction of permanent lines in the rear of armies, or for the repair of existing lines. The *Internationale Revue* states that during the recent events in China the telegraph detachment was able to lay down a permanent line of 200 kilometres in length, between Pekin and Pao-Ting-Fou, in forty days. A provisional line, with a single cable, was still more rapidly constructed, viz., in eight days, at the rate of, on an average, 25 kilometres a day, in spite of the distressing climatic conditions. In addition to the battalions, there is also a cavalry telegraph school for the training of officers and non-commissioned officers in rapid demolitions and repairs, and for the instruction of cavalry telegraphists. Every regiment has the necessary *matériel* for this purpose.

The balloon battalion consists, in peace-time, of two pioneer companies and of a team detachment. Its *rôle* is the employment of free and captive balloons and the utilisation of wireless telegraphy. Kites are used in Germany for captive ascents, which can rise even in a high wind. The cable allows for ascents of 1,000 metres in fine weather, but practically a height of 600 metres is seldom exceeded. It is admitted that exceptionally favourable conditions are necessary in order to make observations at more than 7 kilometres. A balloon company is divided into 7 groups, one for the balloon, one for the gas, one for the car, one for the cable, one for the telephone, one advanced guard, and one reserve group.

The balloon group, 2 non-commissioned officers and 38 men superintend the unfolding, the putting together, and the inflating of the balloon. The gas group, 1 non-commissioned officer and 12 men, look after the preparation of the gas. Half are employed at the generator or at the reservoirs, the other half at the adduction tubes. The groups for the car, the cable, and the telephone consist each of 1 non-commissioned officer and 4 men. Their designation sufficiently demonstrates their duties. The advance guard group removes obstacles before the arrival of the balloon. The reserve group furnishes the necessary sentries, patrols, and cyclists. One of the officers attends to reconnaissance from the car, another works the telephone and transmits information, a third directs the manœuvres of the balloon, whilst a fourth officer remains at the disposal of the group commander for various duties. A balloon group has 18 wagons, 15 of which are for the fighting line, and 3 for the regimental transport. The former, drawn by 6 horses, consist of 2 wagons for *matériel*, 12 for gas, and 1 for the windlass; the gas wagons allow for two inflations. There is also a reserve column of 12 gas wagons. Bavaria alone, in addition to Prussia, has special communication troops which consist, as in Prussia, of railway troops and telegraph and balloon detachments.

Transport and Convoys.—In time of war, each transport battalion (1 per army corps) is responsible for the mobilisation of the following formations for its army corps :—

6 provision columns.
7 park supply columns.
12 field hospitals.
1 remount *depôt*.
1 bakery column.

In addition, each of them has to ensure the mobilisation of a certain number of variable Army units, or of services for the lines of communication, of auxiliary convoy sections, or of formations destined for the reserve divisions. Finally, each of them forms a reserve battalion of 3 companies as a *depôt*, and a remount *depôt*. The task is a very hard one, as will be seen from the fact that the German battalion in peace-time only consists of 3 companies.

A provision column consists of either 27 wagons drawn by 4, or of 36 wagons drawn by 2 horses, and of 2 reserve wagons (one of which carries a forge) drawn by 4 horses, in all 29 or 38 wagons, 141 horses, 2 officers, 2 officials, 97 men (34 carbines). The 4-horse wagons, which are of various models, the most recent being those of 1887, weigh only 729 kilogrammes; the 2-horse wagons, 1895 model, weigh, empty, only 400 kilogrammes. The former may be loaded with 1,000, and the latter with 750 kilogrammes weight. They are, preferably, loaded with dried vegetables, bacon, biscuit, preserved meat, and corn. The average wagon carries the rations for 750 men or 150 horses for one day. A provision column carries about a day's rations for an infantry division.

A park supply column consists of 60 two-horse wagons and of 2 two-horse baggage wagons, 162 horses, 3 officers or functionaries, 106 men (40 carbines). A portion of the wagons already exist, and are of regulation model, but the remainder are requisitioned on mobilisation. The latter are heavier vehicles and can only move at the trot when empty. The load per wagon is estimated at about 800 kilogrammes. A park supply column is about double the size of a provision column. The whole of an army corps' columns principally contain 4 days' rations for an army corps and for half a cavalry division. Each column is always loaded with complete rations.

A field hospital consists of 9 wagons, 29 horses, 2 officers, 6 doctors, 1 functionary, 48 men (6 carbines). It is supposed to look after 200 wounded men.

The bakery column consists of 20 four-horse oven wagons, of a four-horse reserve wagon, 103 horses, 3 officers or functionaries, 258 men (204 carbines). In 24 hours it can bake 28,000 to 36,000 bread rations.

The remount *depôt* consists of 98 saddle horses, 104 draught horses, 2 officers, 117 men, and 3 wagons.

Such are the units composing the mobilised transport battalion. They are army corps units, under the orders of a battalion commander, who receives his orders from the army corps staff. Certain other units are also sometimes placed on the march under the orders of the officer commanding the transport battalions, such as the army corps bridging transport, and the army corps telegraph detachment, which are also army corps units. The bridging equipment of an army corps consists of 34 wagons (with 26 pontoons), 222 horses, under the orders of a captain of transport; with this unit there are also 2 pioneer officers, with 7 non-commissioned officers and 54 sappers. The corps equipment allows for the construction of a bridge of 132 metres. The telegraph detachment has 10 wagons. The

two transport sections are placed under the orders of the most senior captains. In case of emergency the staff of the army corps may send its orders direct to one of the sections. When the army corps marches in several columns, certain transport units may also be temporarily placed at the disposal and under the orders of the division generals. As regards the units properly belonging to the divisions, such as the divisional bridging equipment, and ambulance, they are not, as a rule placed under the orders of the transport battalion commander. The former is equal to about a third of the army corps equipment, and can construct a bridge of 43 metres. The ambulance consists of 13 wagons, 8 of which are for the sick, and each carrying 40 stretchers, 13 officers, doctors, and functionaries, and 241 men, 176 of whom are stretcher bearers.

There now remain only the ammunition sections and the regimental transports to be considered. Each army corps possesses two groups of ammunition sections, each consisting of 2 infantry and 4 artillery ammunition sub-sections.

The infantry ammunition sub-section consists of 26 wagons, 3 officers, 179 men (66 carbines), and 187 horses. The whole of the 4 infantry ammunition sub-sections contain 80 cartridges per rifle for the infantry of the army corps. As the company wagons carry 55 cartridges per man, and the soldier himself carries 120, the German infantryman of the army corps has 255 cartridges available. The 8 artillery ammunition sub-sections contain 128 shrapnel and 26 high-explosive shells per field gun, and 13 shrapnel and 58 high-explosive shells per field howitzer. In addition to the 8 army corps artillery ammunition sub-sections there are also 5 light ammunition sections in each army corps, which are placed at the disposal of divisions. The reason for this organisation lies in the small number of ammunition wagons of the German field battery (9 only to 6 guns). The light sections carry 32 shrapnel and 24 high-explosive shells per gun, and 14 shrapnel and 84 high-explosive shells per field howitzer. As the batteries themselves carry 124 shrapnel and 6 high-explosive shells per gun, or 54 shrapnel and 34 high-explosive shells per field howitzer, the German army corps has altogether 340 shells per gun and 260 per howitzer.

As has been already mentioned, the whole of the sections and convoys are, as a rule, distributed into two almost equal units. The first, which is also called *Gefechts-Staffel* because a portion of it is brought up to the troops when in action, follows the fighting units at a distance of from 10 to 12 kilometres. Its depth is 8,600 metres. The second section is kept, as a rule, a short march distance away. As in France, so in Germany, it is considered desirable that transport and convoys should never interfere with the march of the troops, consequently the movements necessary for provisioning the troops both in rations and ammunition, and for re-fitting the ammunition sections and convoys, are frequently carried out at night, and are often at considerable distances, when they would cause immense fatigue, and the rapid wear and tear of the units concerned, were they not conducted with the most watchful and minute care by their commanders.

There now only remain the wagons belonging to corps and to the regimental transports to be considered. The whole of these wagons come under the denomination of *Baggage*, and is divided into *Light* and *Heavy Baggage*. These date from 1870. The *Light Baggage* consists of troop wagons necessary in action, viz., for infantry, medical, and ammunition wagons, and lead horses; for the cavalry the boat wagons should be added to these; for the artillery only the lead horses are used. The *Heavy Baggage* consists of all the regimental vehicles which are only required in

cantonment or bivouac, such as baggage, rations, and field forge wagons. It must be remembered that in Germany the regimental transport only carries one day's rations, and that the soldier, on the other hand, carries 3 days' reserve rations in his haversack. The *Heavy Baggage* is generally grouped by divisions, and follows the troops at a distance of from 2 to 5 kilometres. It is sometimes reinforced by a certain number of requisitioned wagons for carrying the sick and a portion of the valises. The *Heavy Baggage* of an infantry division consists, in round numbers, of 200 wagons, and occupies a distance of 3 kilometres on the march.—*Precis from La France Militaire.*

SWEDEN.—*New Army Organisation.*—Some information regarding the re-organisation of the Swedish Army has already appeared in last year's JOURNAL for November. The Berlin *Militär-Wochenblatt* has recently been publishing a series of articles on the subject, of which the following is a *précis* :—

The putting into effect of the new organisation has naturally carried with it numerous modifications from both a general and a particular point of view. A new distribution of the military recruiting centres has been carried out; officers responsible for the keeping up of the registers have been appointed; and the regulations regarding the inscription on the registers of men liable to obligatory military service have come into force. On going into details the following changes become apparent :—

The General Staff has been so increased as to attach to each army corps (called an army section) a staff captain, who will be at the disposal of the chief of the staff as his immediate assistant for mobilisation purposes. From the Smœland Grenadier's Corps, and from the cadre of the Blekinge Battalion, a new regiment of Karlskrona Grenadiers has been formed; similarly, from the Vermland Field Jaeger Corps, and from the cadre of the Halland Battalion, a new Vaxholm Grenadier Regiment has been formed; these two regiments have two battalions each. From the cadre of the disbanded Vestgœtadal Regiment, the Halland Regiment has been formed. The Vermland Infantry Regiment is transferred from the IIIrd to the Vth, and the Helsings Regiment from the Vth to the VIth Army Corps. The Norbotten Regiment is attached to the VIth Army Corps, and forms the garrison of Boden. There are no changes to be noted regarding the cavalry.

The giving effect to the new organisation of the field artillery is postponed until the adoption of the new artillery *matériel.* An experimental battery of 4 guns has been formed with the 1st Svea Artillery Regiment. The horse artillery group of the Vende Artillery Regiment consists of 3 batteries of 4 new model Q.F. guns each. The organisation of the foot artillery has commenced, and drills have already taken place for the most senior *Bevœring* (Reserve) troops. For the present, old 12-cm. breech-loading guns and howitzers, which will later on be replaced by Q.F. guns, are used for drill purposes. The Karlsborg Artillery Corps has been transformed into a fortress artillery regiment, viz., the Karlsborg-Boden Artillery Regiment; the Vaxholm Artillery Corps posted for coast defence.

The engineers, re-organised, consist of the Svea Engineer Corps, the Gœta Engineer Corps, the Telegraph Corps, and the Boden Engineer Corps. The two first each consist of 3 field engineer companies, 1 park company, and 1 fortress company. The Telegraph Corps has a staff, 2 companies, 1 draft and 1 park section. The Boden Engineer Corps con-

sists of 4 companies, with mine, *matériel*, and park sections. Transport battalions will, in future, be called transport corps. Two new corps, the 2nd Svea and the 2nd Gœta, are in process of formation.

The troops quartered in the Island of Gotland consists of:—The Gotland Infantry Regiment, composed of a staff, of 2 battalions of 4 field companies each, 2 fortress companies, 1 transport company, 1 cyclist section, and of the Gotland Artillery Corps. The present fortress companies will become batteries of position. Since the 1st January, 1902, the coast fortifications have been handed over to the Navy.

Men of the infantry and other dismounted branches of the Service, liable to compulsory service, have to put in 240 days altogether; at the same time, during the transition period, from 1902 to 1907, the Swedish Parliament has reduced the period of service to 172 days, of which 112 are for the first year (the recruit period), and 30 days for both the second and the third years. For the cavalry, the field artillery, field engineers, and field telegraph troops, the recruit period lasts for 137 days, and drills for the next two years of 35 days each; after the transition period the recruit period will last for 281 days, with two drill periods of 42 days each. The first levy of the *Beværing* (Reserve) take part in three drills of 30 days each; for the second levy of the Reserve the Parliament has reduced the drill period to 15 days, in spite of the protest of the War Minister.

The landsturm, according to the scheme of the Chief of the General Staff, should be organised as follows:—The country will be divided into landsturm centres, in which battalions of 4 companies may be formed, if the population is sufficiently numerous to allow of it; according to circumstances, the number of the companies may be reduced to three or to two, or raised to five. Further, should circumstances permit, cavalry, cyclist, and skating sections may be formed. Each landsturm centre, consisting of 150 men, receives a commandant, and non-commissioned officer as adjutant. The former exercises the chief command of the landsturm troops, is responsible for the magazines attached to the landsturm, for the selection of men for voluntary musketry, etc.; the latter is charged with the office work, and receives the arms and ammunition necessary for the district. In order to maintain an efficient practice of musketry, men of the reserve and landsturm, who belong to shooting societies, receive at least 50 rounds to be expended in the course of each year they are not called up for drill. Further, the shooting societies receive from the State arms and the necessary *matériel* for targets, as well as grants for the laying down of ranges, on condition that the landsturm district commander has sole direction of the musketry to be carried out. In addition, the voluntary course of instruction for the *personnel* of the landsturm command and the mobilisation exercises must take place before the organisation is developed. At certain points, as for instance on the coasts and at the frontiers, the landsturm magazines should contain, in addition to arms and ammunition, all the clothing and equipment necessary for prompt mobilisation. All these provisions should be realised 10 years hence.

NAVAL AND MILITARY CALENDAR.

JULY, 1903.

2nd (Th.) H.M.S. "Pique" arrived at Plymouth from China.

5th (S.) H.M.S. "Cossack" arrived at Plymouth from East Indies.

" " News received that the Abyssinians had inflicted heavy loss on the Ogaden Somalis.

6th (M.) President Loubet of the French Republic arrived in London.

" " The Duke of Devonshire announced that a Royal Commission was to be appointed to consider the question of the deterioration of the national physique.

8th (W.) H.M. the King, accompanied by H.M. the Queen and President Loubet, reviewed the 1st Army Corps at Aldershot.

9th (Th.) H.M.S. "Leviathan" left Portsmouth for China.

" " Launch of third-class cruiser "Bremen" at the Weser Yard, Bremen, for Imperial German Navy.

" " President Loubet returned to France.

10th (F.) H.M. the King reviewed the Honourable Artillery Company on the Horse Guards' Parade.

11th (Sat.) America won the Palma Trophy at Bisley with 1,570 points, the United Kingdom being second with 1,555.

18th (Sat.) H.M.S. "Brilliant" paid off at Portsmouth.

" " White Paper issued regarding the physical condition of Army recruits.

" " Nos. 15 and 22 Companies, Army Service Corps, left South Africa for Somaliland in the "Drayton Grange."

20th (M.) Pope Leo XIII. died.

21st (T.) H.M.S. "Hyacinth" commissioned at Devonport for East Indies.

23rd (Th.) Launch of first-class battle-ship "King Edward VII." at Devonport.

" " Launch of third-class cruiser "Topaze" from Messrs. Laird's Yard, Birkenhead.

" " Their Majesties the King and Queen held a review of troops in Phœnix Park, Dublin.

" " H.M. the King presented colours to the Royal Hibernian Military School.

25th (Sat.) Launch of third-class cruiser "Hamburg" from the Vulcan Yard, Stettin, for Imperial German Navy.

27th (M.) H.M.S. "Montagu" commissioned at Devonport for Mediterranean.

31st (F.) Nos. 15 and 22 Companies, Army Service Corps, arrived in Somaliland from South Africa in the "Drayton Grange."

FOREIGN PERIODICALS.

NAVAL.

ARGENTINE REPUBLIC.—*Boletín del Centro Naval.* Buenos Aires: May, 1903.—"The Peace Rejoicings: The Chilian Delegation at Buenos Aires." "The 25th May, 1903." "The Sea Coasts of Argentina." "The Proposed New Fishery Regulations." "The Austrian and German Naval Manœuvres of Last Year." "The Voyage of the 'Azopardo' for Exploration in the Gulf of San Matias."

AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens.* No. 8. Pola: August, 1903.—"Correlation Between the Sea and Inland Waters." "The English Admiralty Report on the Mediterranean Naval Manœuvres of 1902." "The Italian Naval Estimates for 1903-04." "Foreign Naval Notes."

BRAZIL.—*Revista Maritima Brazileira.* Rio de Janeiro: June, 1903.—"Riachuelo." "On Light-houses." "Service and Discipline on board our Ships of War." "The General Instructions of the English Hydrographical Department." "Submarine Mining." "Compensation and Regulation of the Compass Needle without Azimuths." "Naval Notes."

FRANCE.—*Revue Maritime.* Paris: June, 1903.—"The Control of the Administration of the Navy before Public Opinion and before Parliament" (*continued*). "The New Port of Saigon." Foreign Navies: "Report of the Secretary of State of the United States Navy." "The English Cruisers."

La Marine Française. Paris: July, 1903.—"The Naval Problem." "Hygiene in the Navy." "The German Navy and the Submarine." "A German Gibraltar on the Persian Gulf." "British Interests in Persia." "A Russian Creation in the Extreme East: Port Dalny." "Naval Notes."

Le Yacht. Paris: 4th July, 1903.—"*A propos* of Oceanography." "Yachting Notes." "The Mercantile Marine: French and Foreign." 11th July.—"The Organisation of our Naval Forces in 1904." "Yachting Notes." "The Torpilleur de haute-mer 'Audacieux.'" "The Mercantile Marine: French and Foreign." 18th July.—"The Vicissitudes of the Italian Navy, 1860-1903." "Yachting Notes." "The Reconstruction of the 'Furieux.'" 25th July.—"Naval Chronometers." "Yachting Notes." "The Mercantile Marine: French and Foreign."

Le Moniteur de la Flotte. Paris: 4th July, 1903.—"The Autonomy of Our Mercantile Ports" (*continued*). "The Congress of Naval Architects" (*continued*). "The Means of Saving Life on Board Mail Steamers." 11th July.—"The Congress of Naval Architects" (*continued*). "The Navy in Parliament." 18th July.—"The Autonomy of Our Ports of Commerce" (*continued*). "Search-lights in Night Actions." "The

Death of Vice-Admiral Besnard." 25th July.—"Russia and Japan." "The Minister of Marine at Bordeaux."

GERMANY.—*Marine Rundschau.* Berlin: August-September, 1903.—"The North Atlantic Powers: "A Politico-Geographical Study." "Wireless Telegraphy as a Means of Signalling for Scouting Service." "State Subsidies for the Mercantile Marine." "Experimental Studies on Sunstroke and the Means of Protection Against Heat Radiation." "The English Navy in the Second Half of the 19th Century." "The Venetian Republic: A Concise Sketch of Its Rise and Its Prosperous Days." "Naval Literature in 1902."

ITALY.—*Rivista Marittima.* Rome: July, 1903.—"On the Magnaghi Compass." "The Emigration and Colonisation Policy in Argentina." "Quadruple Expansion Engines." "The Navy in the Period Preparatory to Re-organisation." Letters to the Director:—"On the Speed of Battleships." "An Instrument for Aiming Exercises." "Drinking Water in Ships." "Constructors, Captains, and Engineers." "Naval Notes."

PORTUGAL.—*Revista Portugueza, Colonial e Maritima.* Lisbon: July, 1903.—"Bento de Goes (1562-1607)." "Penal Transportation and Colonisation" (*continued*). "The Expedition to Quincunquilla" (*continued*). "The Naval Arsenal." "Naval Notes."

SPAIN.—*Revista General de Marina.* Madrid: July, 1903.—"The New English Battle-ship 'Commonwealth.'" "Organisation of Naval Reserves" (*concluded*). "Description of the Siemens-Halske Orders-Transmitter." "Hospitals for Battle in Modern Ships of War." "Description of the Turrets for the 24-cm. Guns of the 'Princess of Asturias' type of Cruiser." "The Strategical Importance of Bizerta." "Naval Notes."

MILITARY.

AUSTRIA-HUNGARY.—*Militär-Zeitung.* Vienna: 7th July, 1903.—"Military Reflections on Events in Servia." "Distinguished Imperial Commanders of the 17th and 18th Centuries" (*continued*). "The New Formation of the English Army." 15th July.—"Military Reflections on Events in Servia" (*continued*). "Distinguished Imperial Commanders of the 17th and 18th Centuries" (*continued*). "The Re-organisation of the Russian General Staff."

Organ der Militär-Wissenschaftlichen Vereine. Vienna: Vol. LXVII. Part I. 1903.—"The Employment of Field Howitzers." "Advance of Napoleon I.'s Army into Germany."

Mittheilungen über Gegenstände des Artillerie- und Genie-Wesens. Vienna: July, 1903.—"Shooting Experiments with Small-bore Weapons." "Cavalry Bridging Transport." "Electric Main Railway Lines."

BELGIUM.—*Bulletin de la Presse et de la Bibliographie Militaires.* Brussels: 15th July, 1903.—"The German Imperial Manœuvres of 1902" (2 sketches). "Cavalry Scouting from the Revolution to the Present Day" (*concluded*). "General Rules of the Evolution of Tactics." 31st

July.—"General Rules of the Evolution of Tactics" (*concluded*). "The German Imperial Manœuvres of 1902" (2 sketches; *continued*).

FRANCE.—*Revue du Cercle Militaire.* Paris: 4th July, 1903.—"The New Infantry Drill Regulations." "The Approaching Military Crisis in Germany." "The Canal of the Two Seas" (*continued*). 11th July.—"Influence of Artillery Fire on the *Moral* of Troops." "The Canal of the Two Seas" (*continued*). "The New Infantry Drill Regulations" (*continued*). 18th July.—"The Canal of the Two Seas" (*concluded*). "Questions of Uniform." "The New Infantry Drill Regulations" (*concluded*). "Medical Statistics of the Netherlands Army for 1901." 25th July.—"The Modern Japanese Soldier." "Recollections: Strasburg, 1870." "Individual Musketry Instruction." "Teachings of Two Recent Wars."

Le Spectateur Militaire. Paris: 1st July, 1903.—"Information for the Company School." "The Campaign of 1813" (1 sketch; *continued*). "Moral Education in the Army." "The Conquest of the Sahara Oases." 15th July.—"Information for the Company School" (*concluded*). "The Campaign of 1813" (*continued*). "Moral Education in the Army" (*continued*). "The Conquest of the Sahara Oases" (*continued*).

Revue d'Artillerie. Paris: June, 1903.—"Heavy Artillery in the Attack on Fortified Field Positions in Germany." "Note on the Measurement of Parallaxes with the Goniometre graduated into Decigrades." "Harness and Draught of Wagons in the Italian Artillery." "Minimum Distance between a Battery and its Epaulement."

July, 1903.—Has not been received.

Revue Militaire. Paris: July, 1903.—"The German War Budget for 1903." "The Re-organisation of the United States Army." "Studies of the South African War, 1899-1900" (*continued*).

Revue d'Histoire. Paris: July, 1903.—"The Campaigns of Marshal Saxe" (*continued*). "Studies of the Campaign of 1799" (*continued*). "The War of 1870-71: The 15th August in Lorraine" (*continued*).

Revue de Cavalerie. Paris: July, 1903.—"Mounted Cavalry: A Last Word." "The Use of the Sword when Mounted." "The Transformation of Cavalry" (*continued*). "Cavalry Machine Guns" (*continued*). "A Cossack Commander in the Campaign of 1813" (*concluded*).

Journal des Sciences Militaires. Paris: July, 1903.—"Moltke's plan for 1870." "The Practical Reduction of Military Service" (*concluded*). "On Infantry Fighting Formation." "The Use of Picked Soldiers." "The War of Succession in Austria, 1740-1748" (*continued*). "Tonkin of the Conquest of 1884-1885" (*continued*).

GERMANY.—*Militär-Wochenblatt.* Berlin: 2nd July, 1903.—"The Duty of Officers as Instructors." "Exercises for the Training of Knights in Japan." "Intelligence from the Anglo-Indian Army." "Intelligence from the Danish Army." 4th July.—"The Grand Army Races in the Hoppegarten." "The Duty of Officers as Instructors" (*continued*). 7th July.—"On Musketry Training in Battle Formations." "The Duty of Officers as Instructors" (*concluded*). "The 'Hospital Royal des Invalides' under King Louis XIVth." "The German 'Kriegerbund' for 1901 and 1902." 9th July.—"On the 350th Anniversary of the Battle of Sievershausen, the 9th July, 1553." "On Musketry Training in Battle Forma-

tions" (*continued*). "Intelligence from the Italian Army." 11th July.—"Field Howitzers." "On Musketry Training in Battle Formations" (*concluded*). "Re-organisation of the Argentine General Staff." 14th July.—"Principle, Watchword, and Imagination." "Field Howitzers" (*concluded*). "A Military Memorial Festival in Tokio." 16th July.—"Machine Guns as a Substitute for a Wider Field of Infantry Fire." "Principle, Watchword, and Imagination" (*concluded*). "Establishment of a Cadet School for the Nobility in Russia." 18th July.—"The German Naval Annual for 1903." "Machine Guns as a Substitute for a Wider Field of Infantry Fire" (*concluded*). "Intelligence from the Spanish Army." 21st July.—"Orders on the Cessation of the Battle of Wörth." "The Importance of Horse Shoeing in the Army." "Intelligence from the Belgian Army." 23rd July.—"Events in North Africa" (*continued*). "Orders on the Cessation of the Battle of Wörth" (*continued*). "Intelligence from the French Army." 25th July.—"Orders on the Cessation of the Battle of Wörth" (*concluded*). "Intelligence from the Austro-Hungarian Forces." 28th July.—"Numbers in Battles round Fortified Positions." "General Brialmont." 30th July.—"Noteworthy Items from the New Austro-Hungarian Infantry Musketry Instructions." "Events in North Africa" (*continued*). "Review of the English Ist Army Corps at Aldershot in Honour of President Loubet."

Internationale Revue über die gesammten Armeen und Flotten. Dresden: July, 1903.—"Military and Naval Intelligence from Belgium, France, Germany, Great Britain, Italy, Japan, Peru, Russia, Sweden, Switzerland, Spain, and Turkey." *French Supplement 52.*—"Medical Service on the Battle-field: Lessons from the South African War." "The Maps to Consult for the Study of Military History." "Strategy is a Science and an Art." "The Railway War in South Africa."

Jahrbücher für die Deutsche Armee und Marine. Berlin: July, 1903.—"Initiative of Commanders in War." "The Re-armament of the Swiss Artillery." "The Present Position of Armoured Protection." "The Former Hanoverian Army and its End." "The Military Importance of the Great Siberian and Manchurian Railway."

Neue Militärische Blätter. Nos. 25 and 26. June, 1903.—"Opinions of a former Regimental Commander." "Swiss Experiments with Field Guns." "Results of the Russian Recruiting for 1902." "The Genesis of the Servian Revolution." "Results of the Finland Recruiting for 1902." "The Present Position of the Submarine Boat Question."

No. 1. July, 1903.—"Field Artillery in the German Army." "The New Promotion Regulation in the French Army." "Plan for this Year's Detachment and Grand Manœuvres in Russia." "Tactical Changes." No. 2. July.—"Promotion and Want of Officers for our Infantry." "Re-armament of the Swiss Field Artillery." "Progress of the English Navy." No. 3. July.—"Weissenburg and Wörth." "Gourko's Crossing of the Balkans." "Tactical Changes" (*continued*). "On the History of the Campaign of 1815."

ITALY.—*Rivista di Artiglieria e Genio.* Rome: June, 1903.—"On the Manufacture of Mechanism of Precision and Optical Instruments in Italy." "On Some Systems of Syntonic Radiography." "A Graphic Solution of some Ballistic Problems." "Electric Auto-Transformers." "On the Accuracy of the Zeiss Stereo Range-Finder." "Military Notes."

Rivista Militare Italiana. Rome: July, 1903.—"The Regulations for Rifle Firing and National Targets." "On Small Manutenency." "The Frontal Formations of Infantry and Modern Fire." "Notes on the Balkan Peninsula." "Military Notes."

PORTUGAL.—*Revista de Engenheria Militar.* Lisbon: Has not been received.

Revista de Infanteria. Lisbon: July, 1903.—"Munitions of War." "Proposed New Regulations for the Instruction of Troops and Squadrons" (*continued*). "Infantry Mounted Scouts." "Military Communications." "Infantry Equipment." "Rifle Ranges" (*continued*). "South Africa."

SPAIN.—*Memorial de Ingenieros del Ejército.* Madrid: July, 1903.—"Details of the Balloon Ascent of 2nd April, 1903" (*concluded*). "Submarines." "Inutility of Locomotors in the Field." "Military Notes."

Revista Técnica de Infantería y Caballería. Madrid: 1st July, 1903.—"Military Science in Athens: Lecture—'Fortifications in the Middle Ages in Spain.'" "A Notable Bastard Son of the Great Duke of Alba." "Instruction in the Cavalry." "The Spirit of the Military Youth." "A Study of the Spanish Mauser Rifle, 1893 Model." "Dormant Military Rights." 15th July.—"Military Science in Athens: Lecture—'Military Architecture in Toledo and Granada'" "A Notable Bastard Son of the Great Duke of Alba" (*continued*). "Instruction in the Cavalry." "Work in Barracks." "General Nario." "Dormant Military Rights" (*continued*).

RUSSIA.—*Voïénnyi Sbórnik.* St. Petersburg: June, 1903.—"Prince Eugene Napoleon in the Campaign of 1809." "Behind the Army of the Danube Twenty-five Years Ago." "Events at Vilna in 1812." "Draft of the Regulation on Field Service and Battle Instruction of the Three Arms." "Notes on the Austrian Infantry" (*concluded*). "The Battle Preparation of the Sotnia" (*continued*). "Gun and Battery Drill According to the French Field Artillery Regulation." "Mounted Sappers." "Government Ration Allowances in Peace-Time." "The War of 1877-1878" (*concluded*). "Historical Sketch of Korean Immigration into our Frontiers." "The General Staff Regulation." "Military and Statistical Description of Macedonia, Old Servia, and Eastern Albania."

July, 1903.—"Prince Eugene Napoleon in the Campaign of 1809" (*continued*). "The Rôle of the Navy during the War of 1877-1878." "Historical Sketch of the Cossack Service in Siberia." "The English Infantry Drill Regulation." "The Battle Preparation of the Sotnia" (*continued*). "Shooting at Hidden Targets." "The Work of the Railway Troops in China in 1900-1901." "Evacuation and Sanitary Halting-Places in War." "Voyage to Dévé-Boïnu during the Russo-Turkish War." "On the Caspian and at the Persian Frontier." "Extract from the Explanatory Circular Regarding the Scheme for the Organisation of the General Staff." "The English Army after the South African War."

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: July, 1903.—"'Boer Tactics' in Germany." "Experiments of Artillery Fire." "Notes on Field Service in the French Army."

UNITED STATES.—*The Journal of the Military Service Institution.* Governor's Island, New York: July-August, 1903.—"The Coming General

Staff: Its Importance as a Factor in the Military System of the Country." "Lessons from the Conduct of the English Mounted Troops in South Africa." "Our Military Judicial System." "An Old Problem and Its Solution." "The Army Uniform and its Protection." "A Filipino Death-Warrant" "Troop Property Cards." "Historical Miscellany." "Comment and Criticism." "Translations and Reprints." "Reviews and Exchanges."

The United Service. New York: July, 1903.—"Infantry in War." "Old Ironsides." "Lance, Sword, and Carbine." "From Generation to Generation." "Battle of Ball's Bluff." "Ambition." "The Cavalry Arm of the Service." "Our Contemporaries." "Service Salad." "Benjamin F. Stevens."

Journal of the United States Cavalry Association. Fort Leavenworth: July, 1903.—"The American Cavalry in China." "Notes on the German Manœuvres." "Notes on a Japanese Cavalry Regiment." "The Cossack." "A Woman's Glimpse of the War with Spain." "Army Transportation on Land and Water.' "A Military Problem and a Solution for it." "The National Guard." "The Battle of El Caney." "The Flag of El Caney." "Another Spanish View." "Cavalry Bits." "European Appreciation of American Cavalry." "Comment and Criticism." "Reprints and Translations."

NOTICES OF BOOKS.

Principles and Problems of Imperial Defence. By Lieut.-Colonel EDWARD S. MAY, C.M.G., R.A., Professor of Military History at the Staff College, author of "A Retrospect of the South African War," "Field Artillery with the other Arms," "Guns and Cavalry," etc. London: Swan, Sonnenschein & Co., Limited. New York: E. P. Dutton & Co., 1903. Price, 7s. 6d. (net).

That the beginning, the growth, and the continued existence of the British Empire are alike based upon sea power is now generally realised, and the thesis implied by the expression "the Navy first" is therefore unlikely to be seriously assailed by any sane and reasonably well-informed inhabitant of the British Isles or of the Colonies. There are differences of opinion as to the means by which naval protection is to be secured; but that Imperial defence is primarily a naval question is fully admitted by all alike. Yet Colonel May has done wisely in commencing his present contribution to Imperial literature with a chapter discussing "The Foundations of Empire," and explaining therein how it is that Great Britain has succeeded where others have failed, and still continues, though others have decayed and perished.

The individual enterprises of petty as well as of great adventurers created foreign trade; the protection of that trade by the forces of the nation followed, and the small posts established for trade purposes on foreign coasts gradually became advanced naval bases, or grew into fortresses, with increasing areas of territory under their domination. The pioneers of foreign trade were impelled by the spirit of adventure and by the difficulty of acquiring wealth at home to seek their fortunes

upon and beyond the seas. Their own country being too small for them, the adventurous sons of Tyre, of Holland, and of England, spread elsewhere, and, with a prolific population increasing far beyond the self-sustaining capacity of the motherland, it naturally followed that the State became dependent for its sustenance upon extraneous sources of supply. With the loss of their sea-power, the Phœnicians passed away, Holland became merely Holland, and Great Britain, too, must share the like fate if ever she becomes unable to maintain unimpaired the secret of her great strength. Hitherto the Delilahs of Little Englandism have been foiled, and the nation therefore continues prosperous.

Having thus laid stress upon a factor essential to his argument, Colonel May proceeds to state the analogy and general intimacy of naval with military warfare; and also to point out how impossible it is for us to make any great war a purely naval or a purely military one.

To destroy the enemy's forces and keep open our own communications are the great strategical aims; and, towards these, mobility exercises enormous influence. In the present day, mobility, on blue water, is governed by the question of coaling, or, in other words, by the maintenance of fortified coaling stations, and these must be strong—or else be worse than useless. The proper aim of a superior fleet is to bring the weaker opponent to battle, and that of the latter to avoid action pending a good opportunity. The influence that can be exercised by a "Fleet-in-Being" too weak to fight a general action is the sea-counterpart of the strategy of a Fabius; and, as Colonel May points out, the "Fleet-in-Being" can occupy the attention of hostile forces of a strength out of all proportion to its own fighting potentialities. Evasion on the sea is far more easy than on the land, because no tracks are left on the ocean highways, and the elusive enemy is therefore hard to deal with. Yet the mere existence of a hostile "Fleet-in-Being" cannot prevent a more powerful adversary from effecting a definite purpose. The yet unbeaten Chinese fleet failed to oblige the Japanese to postpone their invasion of Korea. In a word, unless there is moral inferiority or weakness of armament, to counterbalance numerical superiority, the ultimate victory must rest with the side that has preponderance in point of numbers, and our fleet must therefore be large enough to overmatch any probable combination against it. Colonel May, after emphasising the importance of an obvious superiority at the outset, says: "The supremacy we seek for our maritime force must be quite indefeasible, and beyond the risk even of challenge." This is a large demand; but it certainly represents the ideal at which we should aim.

The possession of strategic points is indeed essential to comprehensive operations, but to place too much reliance upon them involves a strategical "heresy." Such points are invaluable aids to the offensive-defensive upon which we must rely; but must be the servants, not the masters of naval as well as of military strategy. The need for an army is not reduced, be our fleet ever so strong, or ever so completely victorious: "the provision of a force adequate for a great counter-stroke should, especially in view of the perils with which a protracted war is fraught for us, form a consideration in Imperial defence only secondary to that which compels us to preserve our navy supreme." We require, for our security, to force the fighting: "A protracted war is the very thing that, at all hazards, we should desire to avoid." Clearly, if we have swept the sea as clean as an overwhelming preponderance thereon, such as in Trafalgar days, can effect, a situation amounting to stale-mate will have

been produced, unless we are able to send forth a strong expeditionary force to follow up on land the success won at sea. It has been urged against Colonel May's contention, by a most influential critic, that in such a case —*i.e.*, "stale-mate"—the enemy would suffer as heavily as we. Granting that this objection holds good, so far as regards losses in actual commerce, it still remains that we, of all great Powers, are most dependent for our daily bread upon over-sea supplies, and that although these might be threatened merely by a few privateers, food would reach this country only at famine prices; and though splendidly victorious at sea, we might not improbably be starved into assenting to very far from satisfactory terms of peace. Colonel May discourses on the various schemes that have been put forward with a view to solving the problem of food supply in time of war; but his own solution is the only reliable one, and that is to provide forces that will quickly suffice to beat the enemy to his knees. Into the details of the question of providing a great Imperial Army for offensive warfare, Colonel May does not go, and, tied by his official position, he contents himself, as a loyal soldier, with an expression of opinion that Mr. Brodrick's army corps represent the very minimum force with which important over-sea operations could be attempted. He does not, in fact, venture to allege that such a force is altogether insufficient, although this we may assume is his opinion. At the same time, the author deals at some length with the provision of land forces for what is known as "Home defence," and rightly draws attention to the obvious fact that if invasion can, by means of land forces, be rendered impossible, the strategical value of the fleet must be greatly augmented. "The key of India is in London" was a pregnant aphorism of Lord Beaconsfield, which Colonel May has recalled to our attention. Clearly, if we can bar the door from behind, so that no enemy can burst it open during the temporary absence of the guardians that usually keep watch before it, the latter must be the more free to attend to the at least equally important business of seeking out and arresting the possible housebreakers in their own haunts.

It would be easy to continue almost indefinitely the consideration of this extremely able and most important work, in which the principles by which our Imperial strategy should be governed, and the problems involved thereby, are stated in such a fashion as to be equally interesting and instructive to sailors, soldiers, and thoughtful civilians alike. The book is not a mere museum of good and bad propositions, ancient and modern, but an up-to-date workshop, in which the links of a long chain of evidence are excellently forged together. Here and there, perhaps, there may be slight flaws in the metal, or even inferiority of workmanship, but the matter dealt with is weighty; and perfection being reserved for the next world, we may well be content for the present with such an approximation as Colonel May has now achieved. Colonel May's book is the more welcome because he has so successfully invaded a field of literature hitherto somewhat generally regarded as the close preserve of two or three civilian "specialists." To be brim full of theories, and wholly without practical knowledge sufficient for the practical application of possibly admirable ideas, may be regarded as the sum of the qualifications which the British nation expects of those to whom it usually hearkens. That Colonel May has masterfully elbowed his way to the front—although a mere soldier—is clearly demonstrated by the anxiety displayed by some of the specialists to split straws with him, and to find fault with the literary style of his evidently unwelcome interference with the virtual monopoly which they have hitherto enjoyed.

PRINCIPAL ADDITIONS TO LIBRARY DURING JULY, 1903.

With the Army Service Corps in South Africa. By Sir Woodhouse Richardson. 8vo. 2s. 6d. (Presented.) (Richardson & Co.) London, 1903.

A Sketch of the Services of the Bengal Native Army to the Year 1895. Compiled in the Office of the Adjutant-General in India, by Lieut. F. G. Cardew. 8vo. 4s. 6d. (Presented.) (Government Printing Office.) Calcutta, 1903.

Colonial Institute Proceedings. Vol. XXXIV. 8vo. (Presented.) London, 1903.

Mineral Resources of the United States. By D. T. Day. (Presented.) 8vo. Washington, 1902.

Institution of Civil Engineers, Minutes of Proceedings. Vol. CLII. 8vo. Edited by J. H. T. Tudsbery. (Presented.) London, 1903.

Geological Survey of Canada, Annual Report for 1899. Vol. XII. 8vo. (Presented.) (S. E. Dawson.) Ottawa, 1902.

PICTURE OF THE AFGHAN FORT AT SPIN BALDAK.

Taken by Lieut.-Colonel A. C. Yate, 29th Baluchis, in May, 1902, with a Dallmeyer's Telephotometer lens, where he was subsequently confined by the Afghans from 6th to 26th March, 1903. The fort where Lieut.-Colonel Yate was interned is marked by the white cross.

J. J. K. & Co., Ltd., London.